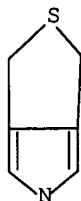


=&gt; d que 126

L23 23488 SEA KATO M?/AU  
 L24 2736 SEA KANEKO A?/AU  
 L25 78 SEA L23 AND L24  
 L26 2 SEA L25 AND PYRROL?

=&gt; d que 122

L1 STR

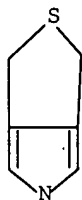


Structure attributes must be viewed using STN Express query preparation.

L3 1 SEA FILE=HCAPLUS ABB=ON PLU=ON US2004-520050/AP  
 L4 1 SEA FILE=HCAPLUS ABB=ON PLU=ON (WO2003-JP8266/AP OR WO2003-JP8266/PRN)  
 L5 1 SEA FILE=HCAPLUS ABB=ON PLU=ON (L3 OR L4)  
 L6 7 SEA FILE=REGISTRY ABB=ON PLU=ON (1313-82-2/BI OR 152940-72-2/BI OR 152940-73-3/BI OR 22722-98-1/BI OR 2526-64-9/BI OR 63156-10-5/BI OR 646065-36-3/BI)  
 L7 79 SEA FILE=REGISTRY SSS FUL L1  
 L8 2 SEA FILE=REGISTRY ABB=ON PLU=ON L7 AND L6  
 L10 2 SEA FILE=HCAPLUS ABB=ON PLU=ON L8  
 L11 32 SEA FILE=HCAPLUS ABB=ON PLU=ON L7  
 L12 32 SEA FILE=HCAPLUS ABB=ON PLU=ON (L10 OR L11)  
 L13 31 SEA FILE=HCAPLUS ABB=ON PLU=ON L12 NOT L5  
 L16 1265 SEA FILE=HCAPLUS ABB=ON PLU=ON ("KATO M"/AU OR "KATO M A M F"/AU OR "KATO M J"/AU OR "KATO M K"/AU OR "KATO M T"/AU OR "KATO M TAKAYUKI"/AU OR "KATO MASAHICO"/AU)  
 L17 301 SEA FILE=HCAPLUS ABB=ON PLU=ON ("KANEKO A"/AU OR "KANEKO AKIRA"/AU)  
 L18 4 SEA FILE=HCAPLUS ABB=ON PLU=ON L16 AND L17  
 L19 4 SEA FILE=HCAPLUS ABB=ON PLU=ON (L18 OR L5)  
 L20 34 SEA FILE=HCAPLUS ABB=ON PLU=ON (L16 OR L17) AND ?PYRROL?  
 L21 36 SEA FILE=HCAPLUS ABB=ON PLU=ON (L18 OR L19 OR L20)  
 L22 36 SEA FILE=HCAPLUS ABB=ON PLU=ON L21 NOT L13

=&gt; d que 113

L1 STR



Structure attributes must be viewed using STN Express query preparation.

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L3      1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  US2004-520050/AP
L4      1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (WO2003-JP8266/AP OR WO2003-JP
      8266/PRN)
L5      1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L3 OR L4)
L6      7 SEA FILE=REGISTRY ABB=ON  PLU=ON  (1313-82-2/BI OR 152940-72-2/
      BI OR 152940-73-3/BI OR 22722-98-1/BI OR 2526-64-9/BI OR
      63156-10-5/BI OR 646065-36-3/BI)
L7      79 SEA FILE=REGISTRY SSS FUL L1
L8      2 SEA FILE=REGISTRY ABB=ON  PLU=ON  L7 AND L6
L10     2 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L8
L11     32 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L7
L12     32 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L10 OR L11)
L13     31 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L12 NOT L5
```

=> dup rem 126,122,113

DUPLICATE IS NOT AVAILABLE IN 'CAOLD'.

ANSWERS FROM THESE FILES WILL BE CONSIDERED UNIQUE

PROCESSING COMPLETED FOR L26

PROCESSING COMPLETED FOR L22

PROCESSING COMPLETED FOR L13

L32 67 DUP REM L26 L22 L13 (2 DUPLICATES REMOVED)

ANSWERS '1-2' FROM FILE WPIX

ANSWERS '3-67' FROM FILE HCAPLUS

=> d all abeq tech 132 1-2;d ibib abs hitstr retable 132 3-67

L32 ANSWER 1 OF 67 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN  
DUPLICATE 1

AN 2004-122567 [12] WPIX Full-text

DNC C2004-049274 [12]

DNN N2004-098082 [12]

TI New 3,5-dihydro-1H-thieno(3,4-c)**pyrrole** derivatives for use in  
e.g. electrical capacitors

DC E13; L03; V01

IN **KANEKO A; KATO M**

PA (NIPS-C) NIPPON SODA CO

CYC 103

PI WO 2004005297 A1 20040115 (200412)\* JA 21[0] C07D495-04

JP 2004035507 A 20040205 (200412) JA 15 C07D495-04

AU 2003246132 A1 20040123 (200459) EN

EP 1557419 A1 20050727 (200549) EN C07D495-04

US 20050222241 A1 20051006 (200566) EN A61K031-407

ADT WO 2004005297 A1 WO 2003-JP8266 20030630; JP 2004035507 A JP 2002-197401.  
20020705; AU 2003246132 A1 AU 2003-246132 20030630; EP 1557419 A1 EP  
2003-738573 20030630; EP 1557419 A1 WO 2003-JP8266 20030630; US

20050222241 A1 WO 2003-JP8266 20030630; US 20050222241 A1 US 2004-520050  
20041230

FDT AU 2003246132 A1 Based on WO 2004005297 A; EP 1557419 A1 Based on WO  
2004005297 A

PRAI JP 2002-197401 20020705

IC ICM A61K031-407; C07D495-04  
ICS C07D498-02

AB WO 2004005297 A1 UPAB: 20060121  
NOVELTY - 3,5-Dihydro-1H-thieno(3,4-c)**pyrrole** derivatives (I) are new.  
DETAILED DESCRIPTION - 3,5-Dihydro-1H-thieno(3,4-c)**pyrrole** derivatives  
of formula (I) are new.  
R1, R2 = H or 1-10C hydrocarbyl.  
An INDEPENDENT CLAIM is also included for intermediates of formula  
(II).  
Z = organic group.  
USE - For use in e.g. electrical capacitors.  
ADVANTAGE - Have good electrical properties e.g. high frequency.

MC CPI: E06-F03; L03-B03A  
EPI: V01-B01B5

TECH ORGANIC CHEMISTRY - Preparation: (I) are prepared e.g. by cyclizing a  
**pyrrole** compound of formula (III) to give (II) and deprotecting  
(II; Z = protecting group).

L32 ANSWER 2 OF 67 WPIX COPYRIGHT 2006 THE THOMSON CORP on STN  
DUPLICATE 2

AN 2004-112968 [12] WPIX Full-text

DNC C2004-046546 [12]

DNN N2004-089890 [12]

TI Manufacture of **pyrrole** derivative having disulfide bond for use  
as positive electrode active material of secondary battery, involves  
processing specific compound with base

DC E13; L03; X16

IN **KANEKO A**; **KANEKO T**; **KATO M**

PA (NIPS-C) NIPPON SODA CO

CYC 1

PI JP 2003335782 A 20031128 (200412)\* JA 6[0] C07D495-04.

ADT JP 2003335782 A JP 2002-138203 20020514

PRAI JP 2002-138203 20020514

IC ICM C07D495-04

ICA C07B061-00

AB JP 2003335782 A UPAB: 20050528  
NOVELTY - A compound (II) is processed by a base to obtain a **pyrrole**  
derivative (I) having disulfide bond.  
DETAILED DESCRIPTION - A compound of formula (II) is processed by a  
base to obtain a **pyrrole** derivative having disulfide bond of formula (I).  
R1, R2 = 1-4C linear or branched alkylene;  
p, q = 0 or 1; and  
Z1, Z2 = H or organic group  
both p and q are not 0.  
An INDEPENDENT CLAIM is included for manufacture of compound of formula  
(IV), which involves reacting compound of formula (III) with metal sulfide and  
sulfur in mixture of water and organic solvent under phase-transfer catalysis  
existence.  
R1, R2, p, q = as mentioned above; and  
Z3 = Z1 of formula (I).  
USE - For manufacturing **pyrrole** derivative for use as positive  
electrode active material of secondary battery.

ADVANTAGE - The **pyrrole** derivative having a disulfide bond is obtained with sufficient yield using an inexpensive reagent. The manufacturing method is industrially advantageous

MC CPI: E06-F03; L03-E01B9

EPI: X16-B01; X16-E01A; X16-E01G

TECH

ORGANIC CHEMISTRY - Preferred Condition: The **pyrrole** derivative is manufactured in inert gas atmosphere.

Preferred Compound: The base is alkali metal hydroxide or alkaline earth metal hydroxide.

L32 ANSWER 3 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:169407 HCAPLUS Full-text

DOCUMENT NUMBER: 142:411126

TITLE: Sulfolenoporphyrins: synthons for refunctionalization of porphyrins

AUTHOR(S): Lee, Sang Hee; Smith, Kevin M.

CORPORATE SOURCE: Department of Chemistry, Louisiana State University, Baton Rouge, LA, 70803, USA

SOURCE: Tetrahedron Letters (2005), 46(12), 2009-2013

CODEN: TELEAY; ISSN: 0040-4039

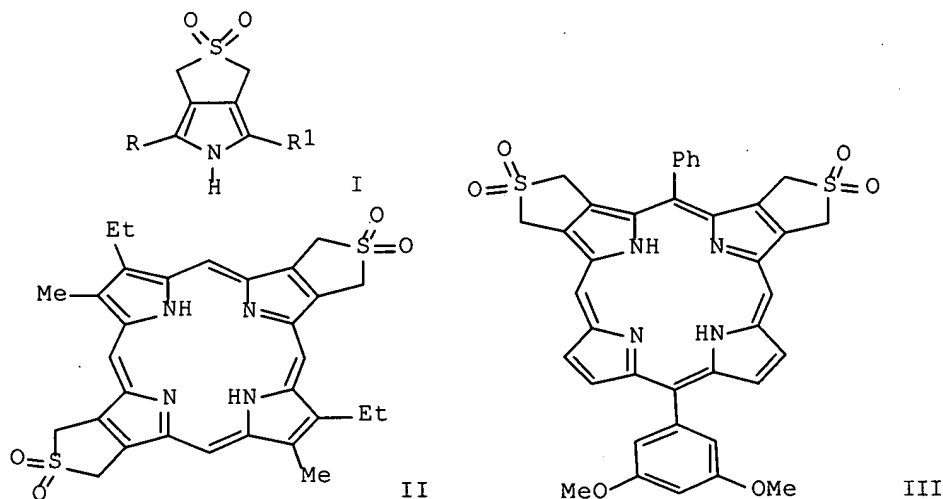
PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 142:411126

GI



AB Using sulfolenopyrroles I (R = H, R1 = CO<sub>2</sub>CH<sub>2</sub>Ph) and I (R, R1 = CHO), methods are developed for the synthesis of opp- (e.g II) and adj- (III) bis-sulfolenoporphyrins. Such compds. are useful building blocks for the refunctionalization of the porphyrin system, and readily undergo Diels-Alder cycloaddn. reactions.

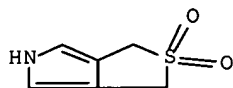
IT 144425-36-5 218628-86-5 850424-43-0  
850424-47-4

RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation of sulfolenoporphyrins as synthons for refunctionalization of porphyrins)

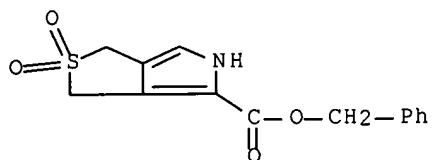
RN 144425-36-5 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 3,5-dihydro-, 2,2-dioxide (9CI) (CA INDEX NAME)



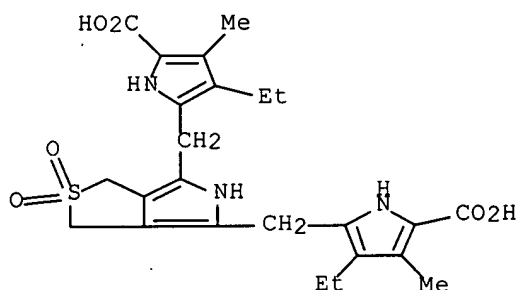
RN 218628-86-5 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 3,5-dihydro-, phenylmethyl ester, 2,2-dioxide (9CI) (CA INDEX NAME)



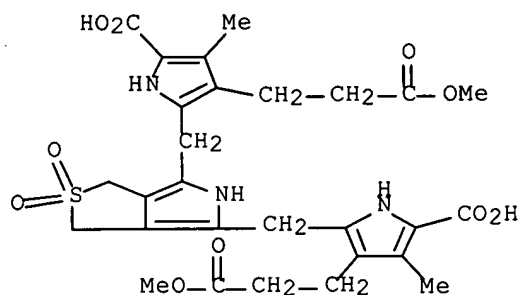
RN 850424-43-0 HCAPLUS

CN 1H-Pyrrole-2-carboxylic acid, 5,5'-(3,5-dihydro-2,2-dioxido-1H-thieno[3,4-c]pyrrole-4,6-diyl)bis[4-ethyl-3-methyl- (9CI) (CA INDEX NAME)



RN 850424-47-4 HCAPLUS

CN 1H-Pyrrole-3-propanoic acid, 2,2'-[(3,5-dihydro-2,2-dioxido-1H-thieno[3,4-c]pyrrole-4,6-diyl)bis(methylene)]bis[5-carboxy-4-methyl-,  $\alpha,\alpha'$ -dimethyl ester (9CI) (CA INDEX NAME)



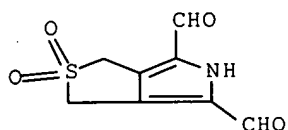
IT 850424-41-8P 850424-42-9P 850424-44-1P  
850424-45-2P 850424-48-5P 850424-49-6P  
850424-50-9P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)

(preparation of sulfolenoporphyrins as synthons for refunctionalization of  
porphyrins)

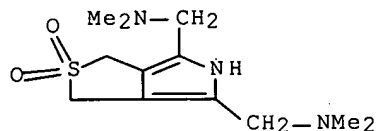
RN 850424-41-8 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4,6-dicarboxaldehyde, 3,5-dihydro-, 2,2-dioxide  
(9CI) (CA INDEX NAME)



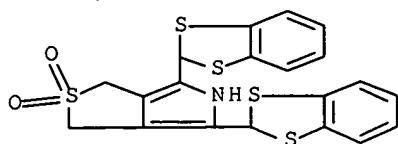
RN 850424-42-9 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4,6-dimethanamine, 3,5-dihydro-N,N,N',N'-  
tetramethyl-, 2,2-dioxide (9CI) (CA INDEX NAME)



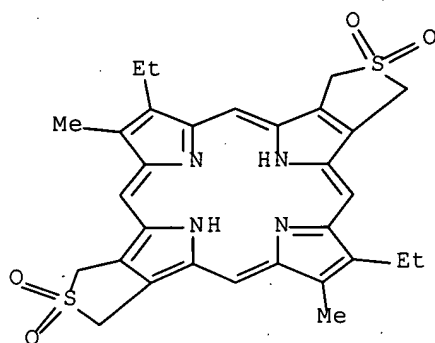
RN 850424-44-1 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 4,6-bis(1,3-benzodithiol-2-yl)-3,5-dihydro-,  
2,2-dioxide (9CI) (CA INDEX NAME)



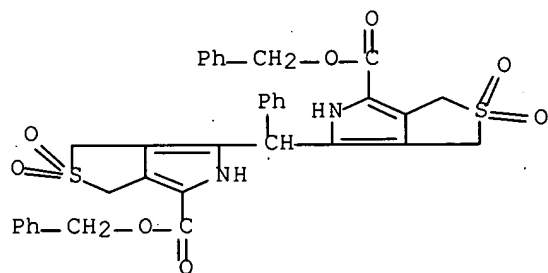
RN 850424-45-2 HCAPLUS

CN 1H,3H,23H,25H-Dithieno[3,4-b:3',4'-l]porphine, 7,19-diethyl-12,14-dihydro-8,18-dimethyl-, 2,2,13,13-tetraoxide (9CI) (CA INDEX NAME)



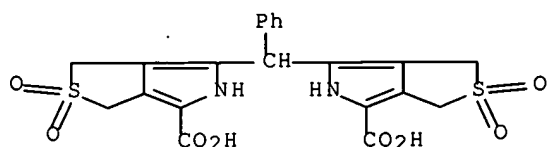
RN 850424-48-5 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 6,6'-(phenylmethylene)bis[3,5-dihydro-, bis(phenylmethyl) ester, 2,2,2',2'-tetraoxide (9CI) (CA INDEX NAME)



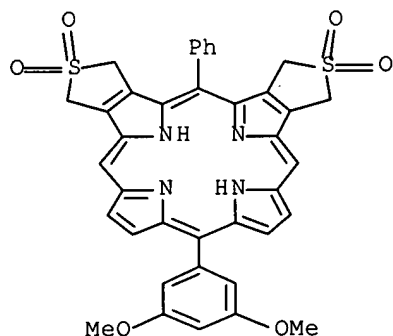
RN 850424-49-6 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 6,6'-(phenylmethylene)bis[3,5-dihydro-, 2,2,2',2'-tetraoxide (9CI) (CA INDEX NAME)



RN 850424-50-9 HCAPLUS

CN 23H,25H-Dithieno[3,4-b:3',4'-g]porphine, 10-(3,5-dimethoxyphenyl)-  
1,3,17,19-tetrahydro-21-phenyl-, 2,2,18,18-tetraoxide (9CI) (CA INDEX  
NAME)

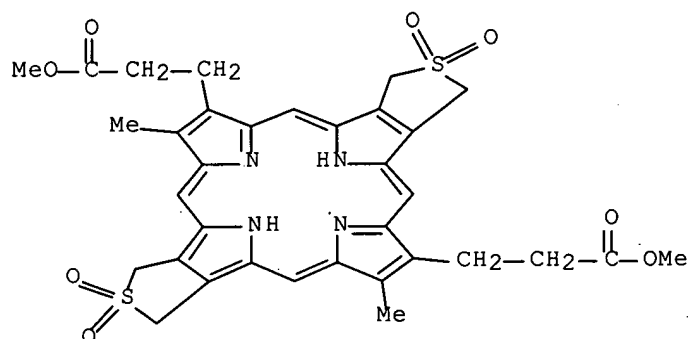


IT 850424-46-3P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of sulfolenoporphyrins as synthons for refunctionalization of  
porphyrins)

RN 850424-46-3 HCAPLUS

CN 1H,3H,23H,25H-Dithieno[3,4-b:3',4'-l]porphine-7,19-dipropanoic acid,  
12,14-dihydro-8,18-dimethyl-, dimethyl ester, 2,2,13,13-tetraoxide (9CI)  
(CA INDEX NAME)



# RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
----------------------------	---------------	--------------	-------------	--------------------------	--------------------



Arsenault, G	1960	82	4384	J Am Chem Soc	HCAPLUS
Boudif, A	1996		1235	J Chem Soc, Perkin T	HCAPLUS
Cadamuro, S	1993		2939	J Chem Soc, Perkin T	HCAPLUS
Gunter, M	1999		803	Chem Commun	HCAPLUS
Gunter, M	2002	6	673	J Porphyrins Phthalo	HCAPLUS
Krautler, B	2000	83	583	Helv Chim Acta	
Kutzki, O	2000	83	2231	Helv Chim Acta	HCAPLUS
Lash, T	2000	2	125	The Porphyrin Handbo	HCAPLUS
Montforts, F	2000	39	599	Angew Chem, Int Ed	HCAPLUS
Nakayama, J	1975		1319	Chem Lett	HCAPLUS
Nakayama, J	1975		525	J Chem Soc, Perkin T	HCAPLUS
Nguyen, L	1996	61	998	J Org Chem	HCAPLUS
Nguyen, L	1994	35	7581	Tetrahedron Lett	HCAPLUS
Rieder, A	2000	122	9050	J Am Chem Soc	HCAPLUS
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Tardieux, C	1998		267	Synthesis	HCAPLUS
Vicente, M	1997	38	3639	Tetrahedron Lett	HCAPLUS

L32 ANSWER 4 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:146495 HCAPLUS Full-text

DOCUMENT NUMBER: 138:187638

TITLE: Preparation of (halomethyl)**pyrroles** from  
(hydroxymethyl)**pyrroles** and hydrogen halides

INVENTOR(S): **Kato, Masahiko**

PATENT ASSIGNEE(S): Nippon Soda Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

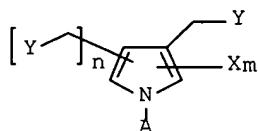
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003055343	A	20030226	JP 2001-250105	20010821
PRIORITY APPLN. INFO.:			JP 2001-250105	20010821

OTHER SOURCE(S): MARPAT 138:187638

GI



AB (halomethyl)**pyrroles** I [A = C1-6 alkyl, (un)substituted Ph, (un)substituted phenylsulfonyl, C1-6 alkylsulfonyl, C1-6 haloalkylsulfonyl, CHO, C2-6 alkylcarbonyl, C1-6 haloalkylcarbonyl, (un)substituted benzoyl; X = halo, C1-6 alkyl, NO<sub>2</sub>, cyano, (un)substituted phenyl; Y = halo; n = 0, 1; m = 0, 1, 2], useful as intermediates for functional products, agrochems., drugs, etc, m are prepared by treating I (Y = CH<sub>2</sub>OH; A, X, m, n = same as above) with hydrogen halides. A toluene solution of 1-(p-methylphenylsulfonyl)-3,4-

di(hydroxymethyl)**pyrrole** was treated with HBr solution at room temperature for 5 h to give 90% 1-(p-methylphenylsulfonyl)-3,4-di(bromomethyl)**pyrrole**.

L32 ANSWER 5 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2004:354172 HCAPLUS Full-text  
 DOCUMENT NUMBER: 141:106158  
 TITLE: Theoretical AM1 study of acidity of porphyrins, azaporphyrins and porphyrazines  
 AUTHOR(S): Stuzhin, Pavel A.  
 CORPORATE SOURCE: Department of Organic Chemistry, Ivanovo State University of Chemical Technology, Ivanovo, 153460, Russia  
 SOURCE: Journal of Porphyrins and Phthalocyanines (2003), 7(11 & 12), 813-832  
 CODEN: JPPHFZ; ISSN: 1088-4246  
 PUBLISHER: Society of Porphyrins & Phthalocyanines  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB The structure-acidity relationship in the series of non-substituted, meso- or  $\beta$ -substituted and  $\beta,\beta$ -annulated porphyrins and porphyrazines have been studied using the AM1 method with UHF basis set. With this purpose, heats of formation have been determined for the geometry optimized structures of the free base macrocycles and corresponding monoanions and dianions formed by deprotonation. Calculated first deprotonation enthalpy values show correlation with available exptl.  $pK_{\text{a}}$  values and can be used for prediction of acidity. For porphyrazines bearing electron-withdrawing substituents or  $\pi$ -deficient annulated heteroarenes the dianions have lower heats of formation than the corresponding neutral species and such porphyrazines are easily deprotonated upon dissoln. in basic solvents (pyridine, DMF). For porphyrazines with annulated 5-member heteroarenes it is predicted that deprotonation of peripheral NH groups should occur more easily than deprotonation of the internal NH groups. The influence of different types of annulation of 5- and 6-membered heteroarenes to the porphyrazine core on the stability of the macrocyclic system and its acidity are also discussed.

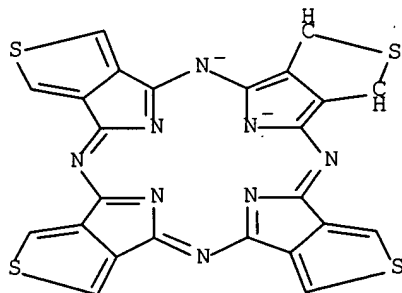
IT 717912-25-9

RL: PRP (Properties)

(dianion, formation enthalpy; theor. AM1 structure-acidity study of porphyrins, azaporphyrins and porphyrazines)

RN 717912-25-9 HCAPLUS

CN 1H,3H,25H,27H-Tetrathieno[3,4-b:3',4'-g:3'',4'''-l:3''',4''''-q]porphyrazine-1,3-diyl, ion(2-) (9CI) (CA INDEX NAME)



IT 717911-56-3

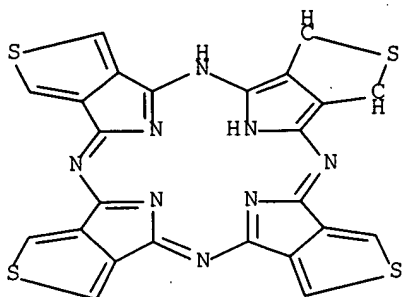
RL: PRP (Properties)

(formation enthalpy and deprotonation enthalpy; theor. AM1

structure-acidity study of porphyrins, azaporphyrins and porphyrazines)

RN 717911-56-3 HCAPLUS

CN 1H,3H,25H,27H-Tetrathieno[3,4-b:3',4'-g:3'',4''-l:3''',4'''-q]porphyrazine-1,3-diyl (9CI) (CA INDEX NAME)



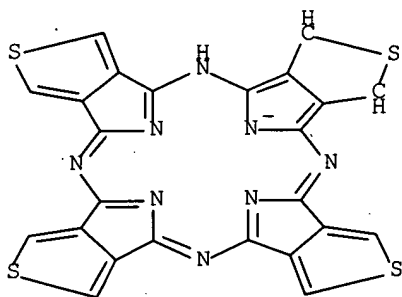
IT 717911-91-6

RL: PRP (Properties)

(monoanion, formation enthalpy; theor. AM1 structure-acidity study of porphyrins, azaporphyrins and porphyrazines)

RN 717911-91-6 HCAPLUS

CN 1H,3H,25H,27H-Tetrathieno[3,4-b:3',4'-g:3'',4''-l:3''',4'''-q]porphyrazine-1,3-diyl, ion(1-) (9CI) (CA INDEX NAME)



## RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anderson, M	1999	38	6143	Inorg Chem	HCAPLUS
Andrianov, V	2001	3	107	Advances in Chemistr	
Arnold, J	2000	3	113	The Porphyrin Handbo	HCAPLUS
Balch, A	1993	32	291	Inorg Chem	HCAPLUS
Berezin, B	1977	20	807	Izv Vyssh Uchebn Zav	HCAPLUS
Bernauer, K	1962	45	2487	Helv Chim Acta	HCAPLUS
Bilton, J	1937	1	922	J Chem Soc	HCAPLUS
Bordwell, F	1988	21	456	Acc Chem Res	HCAPLUS
Brigaud, O	1992	16	1031	New J Chem	HCAPLUS
Burk, P	1993	86	417	Theoret Chim Acta	HCAPLUS

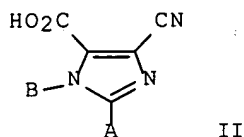
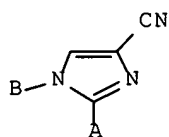
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Zandler, M	1997	401	301	Theochem	HCAPLUS

L32 ANSWER 6 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2002:975665 HCAPLUS Full-text  
 DOCUMENT NUMBER: 138:24715  
 TITLE: Preparation of 4(5)-cyanoimidazoles

10/520,050

INVENTOR(S): **Kaneko, Akira; Kato, Masahiko;**  
**Tsubokura, Shiro**  
 PATENT ASSIGNEE(S): **Nippon Soda Co., Ltd., Japan**  
 SOURCE: **Jpn. Kokai Tokkyo Koho, 5 pp.**  
**CODEN: JKXXAF**  
 DOCUMENT TYPE: **Patent**  
 LANGUAGE: **Japanese**  
 FAMILY ACC. NUM. COUNT: **1**  
 PATENT INFORMATION:

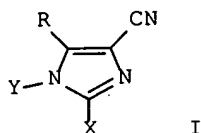
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002371068	A	20021226	JP 2001-184932	20010619
PRIORITY APPLN. INFO.:			JP 2001-184932	20010619
OTHER SOURCE(S):	CASREACT 138:24715; MARPAT 138:24715			
GI				



AB Title compds. I (A = H, hydrocarbyl; B = H, alkyl) are prepared by decarboxylation of cyanoimidazolecarboxylic acids II in organic solvents in the presence of phosphonium or ammonium salt catalysts and alkali or alkaline earth metal salts. Thus, heating 4(5)-cyano-5(4)-imidazolecarboxylic acid in o-dichlorobenzene in the presence of tetrabutylphosphonium bromide and LiCl gave 89% 4(5)-cyanoimidazole.

L32 ANSWER 7 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2002:847766 HCAPLUS Full-text  
 DOCUMENT NUMBER: 137:326819  
 TITLE: Process for manufacturing 4(5)-cyanoimidazole derivatives  
 INVENTOR(S): **Kato, Masahiko; Tsubokura, Shiro;**  
**Kaneko, Akira**  
 PATENT ASSIGNEE(S): **Nippon Soda Co., Ltd., Japan**  
 SOURCE: **Jpn. Kokai Tokkyo Koho, 3 pp.**  
**CODEN: JKXXAF**  
 DOCUMENT TYPE: **Patent**  
 LANGUAGE: **Japanese**  
 FAMILY ACC. NUM. COUNT: **1**  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002322158	A	20021108	JP 2001-128653	20010426
PRIORITY APPLN. INFO.:			JP 2001-128653	20010426
OTHER SOURCE(S):	MARPAT 137:326819			
GI				



AB The title compds. I [R = H; X = H, alkyl; Y = H, alkyl, etc.], useful as intermediates for pharmaceuticals and agrochems., are prepared by heating I [R = CO<sub>2</sub>H; X, Y = as defined above] in an organic solvent with gradual temperature increase (in the range of 160° to 220°). Thus, a mixture of 4-cyanoimidazole-5-carboxylic acid in nitrobenzene was heated to 160° over 2.5 h; the reaction mixture was then heated from 160° to 165° over 0.5 h; the reaction mixture was then heated to 170°; the reaction mixture was heated at 170° for 2 h and then heated to 175°; the reaction mixture was heated at 175° for 2 h; the reaction mixture was then heated to 180° and kept at 180° for 2 h to give, after workup, 4-cyanoimidazole in 53% yield. The title process is safe.

L32 ANSWER 8 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:384316 HCAPLUS Full-text

DOCUMENT NUMBER: 136:386121

TITLE: Method for preparation of disulfide-containing  
**pyrroles** by oxidative cyclization of  
3,4-bis(mercaptoalkyl)**pyrroles**

INVENTOR(S): **Kato, Masahiko**; Iihama, Teruyuki

PATENT ASSIGNEE(S): Nippon Soda Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

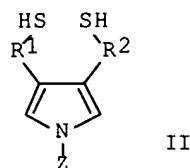
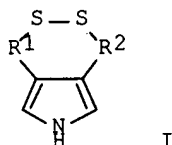
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002145884	A	20020522	JP 2000-335992	20001102
PRIORITY APPLN. INFO.:			JP 2000-335992	20001102
OTHER SOURCE(S):			CASREACT 136:386121; MARPAT 136:386121	

GI



AB **Pyrrole** derivs. containing an intramol. disulfide bond (I; R1, R2 = linear or branched C1-4 alkylene) are prepared by air oxidation of 3,4-bis(mercaptoalkyl)**pyrrole** derivs. (II; R1, R2 = same as above; Z = protecting group) under basic conditions, optionally in the presence of at least one catalyst selected from iron(III) or copper(II) salt catalyst, followed by deprotection. This process gives I in a simple procedure without using expensive reagents. I are monomers for conductive **polypyrroles** which are useful as cathode material for high-capacity secondary battery. Thus, H<sub>2</sub>S was blown into a solution of 1.23 g NaOEt in 20 mL ethanol under cooling at 5-0° to prepare an ethanol solution of Na<sub>2</sub>S which was treated with 0.3 g 1-tert-butoxycarbonyl-3,4-bis(chloromethyl)**pyrrole** and allowed to react at room temperature for 4 h while blowing H<sub>2</sub>S into the reaction mixture. To reaction mixture were added a solution of 0.11 g NaOEt in ethanol and then a catalytic amount of FeCl<sub>3</sub> and the resulting mixture was allowed to react at room temperature for 30 min while blowing air into the reaction mixture and then at room temperature for 22 h after stopping blowing air to give 88% 6-tert-butoxycarbonyl-4,6-dihydro-1H-dithiino[4,5-c]**pyrrole** which was stirred with NaOMe at room temperature for 22 h to give 28% 4,6-dihydro-1H-dithiino[4,5-c]**pyrrole**, i.e. I (R1 = R2 = CH<sub>2</sub>).

L32 ANSWER 9 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:359892 HCAPLUS Full-text

DOCUMENT NUMBER: 136:378253

TITLE: Polysulfide-containing **polypyrrole** and manufacture of the polymer

INVENTOR(S): Koyama, Noboru; Kato, Masahiko; Kaneko, Takehiko

PATENT ASSIGNEE(S): Nippon Soda Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

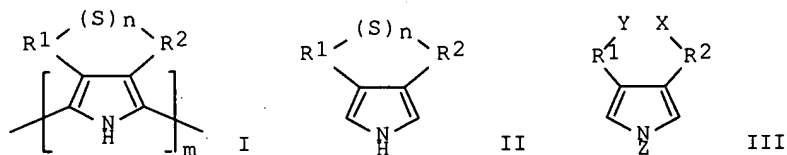
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002138134	A	20020514	JP 2000-335991	20001102
PRIORITY APPLN. INFO.:			JP 2000-335991	20001102
OTHER SOURCE(S):	MARPAT	136:378253		

GI



AB The elec. conductive polysulfide-containing **polypyrrole** is that represented as I (R1, R2 = linear or branched C1-4 alkylene; n = 3-6; m = 10-10,000). The polymer is manufactured by electrolytic polymerization of a **pyrrole** II (R1, R2, and n are the same as I), which is manufactured by reaction of another **pyrrole** III (R1 and R2 are the same as I; X, Y = halogen; Z = protecting

group), alkali metal sulfide, and S. The polymer is regarded as a candidate for cathode active mass in secondary batteries.

L32 ANSWER 10 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:151529 HCAPLUS Full-text

DOCUMENT NUMBER: 139:6702

TITLE: Establishing a library of porphyrin building blocks for superstructured assemblies: Porphyrin dienes and dienophiles for cycloaddition reactions

AUTHOR(S): Gunter, Maxwell J.; Tang, Hesheng; Warrenner, Ronald N.

CORPORATE SOURCE: Division of Chemistry, University of New England, Armidale, NSW 2351, Australia

SOURCE: Journal of Porphyrins and Phthalocyanines (2002), 6(11 & 12), 673-684

CODEN: JPPHFZ; ISSN: 1088-4246

PUBLISHER: Society of Porphyrins & Phthalocyanines

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 139:6702

AB The synthesis and utility of a series of porphyrins with (masked) diene and dienophile functionality are described. The key porphyrin diene is synthesized from a sulfolenopyrrole by a 3+1 strategy. A range of Diels-Alder cycloadducts is readily accessed from the diene by mild thermal extrusion of sulfur dioxide from the sulfolenoporphyrin, which produces the reactive porphodimethylidene. Each of these cycloadducts is fused to the porphyrin nucleus through a cyclohexene ring thus retaining some conformational flexibility in the resultant structures. The structures can be rigidified by mild oxidation to the corresponding benzo-derivs. Diels-Alder reaction of the porphyrin 1,3-diene resulting from the sulfolenoporphyrin with norbornadiene produces the norbornene derivative, which can serve as a dienophile or dipolarophile in subsequent cycloaddn. reactions. Nevertheless, a preferred route to this structure is through a corresponding 1+3 route, where the norbornene component is part of the tripyrrane. Extension of the synthetic protocols allows ready access to a "mixed function" porphyrin, containing both diene and dienophile components. Likewise, the synthesis of a bis-norbornene porphyrin is described. A collection of each of these reactive components is the basis for a library of building blocks which allows easy and simple entry to a wide variety of complex porphyrin-containing superstructures.

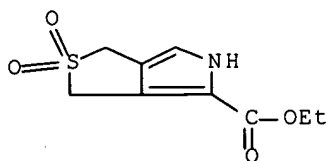
IT 190449-12-8

RL: RCT (Reactant); RACT (Reactant or reagent)

(establishing a library of porphyrin dienes and dienophiles for cycloaddn. reactions)

RN 190449-12-8 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 3,5-dihydro-, ethyl ester, 2,2-dioxide (9CI) (CA INDEX NAME)



IT 144425-36-5P 218628-86-5P 234096-96-9P



10/520,050

234437-54-8P 262611-68-7P 267237-68-3P

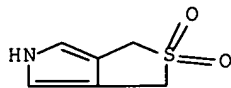
532994-06-2P 532994-08-4P 532994-10-8P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(establishing a library of porphyrin dienes and dienophiles for cycloaddn. reactions)

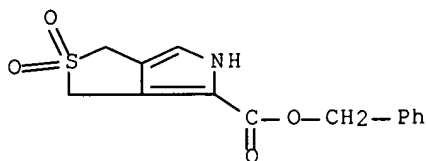
RN 144425-36-5 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 3,5-dihydro-, 2,2-dioxide (9CI) (CA INDEX NAME)



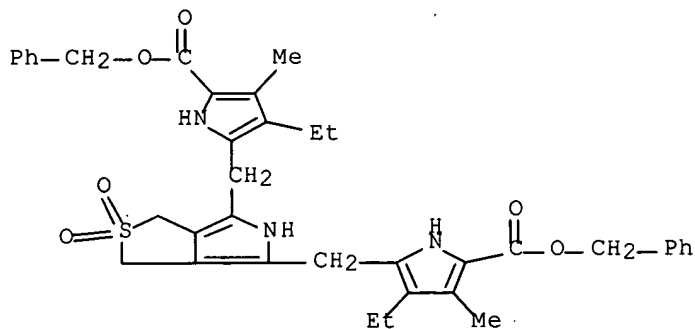
RN 218628-86-5 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 3,5-dihydro-, phenylmethyl ester, 2,2-dioxide (9CI) (CA INDEX NAME)



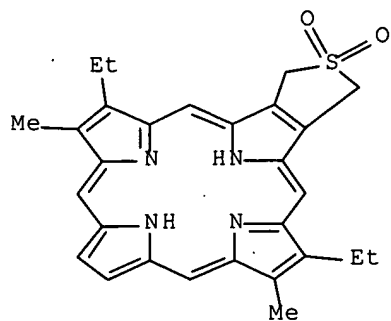
RN 234096-96-9 HCAPLUS

CN 1H-Pyrrole-2-carboxylic acid, 5,5'-[(3,5-dihydro-2,2-dioxido-1H-thieno[3,4-c]pyrrole-4,6-diyl)bis(methylene)]bis[4-ethyl-3-methyl-, bis(phenylmethyl) ester (9CI) (CA INDEX NAME)



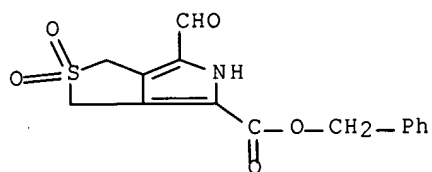
RN 234437-54-8 HCAPLUS

CN 22H,24H-Thieno[3,4-b]porphine, 7,18-diethyl-1,3-dihydro-8,17-dimethyl-, 2,2-dioxide (9CI) (CA INDEX NAME)



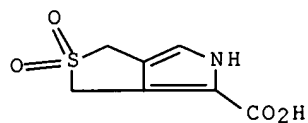
RN 262611-68-7 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 6-formyl-3,5-dihydro-, phenylmethyl ester, 2,2-dioxide (9CI) (CA INDEX NAME)



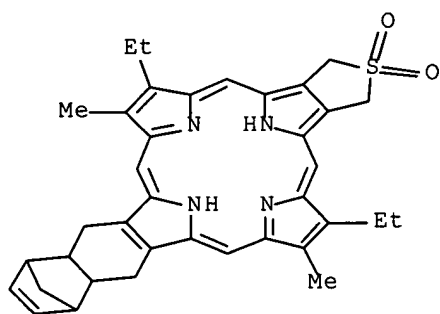
RN 267237-68-3 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 3,5-dihydro-, 2,2-dioxide (9CI) (CA INDEX NAME)



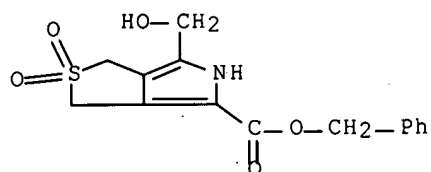
RN 532994-06-2 HCAPLUS

CN 13,16-Methano-26H,28H-naphtho[2,3-b]thieno[3,4-l]porphine, 7,22-diethyl-1,3,12,12a,13,16,16a,17-octahydro-8,21-dimethyl-, 2,2-dioxide (9CI) (CA INDEX NAME)



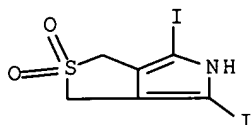
RN 532994-08-4 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 3,5-dihydro-6-(hydroxymethyl)-, phenylmethyl ester, 2,2-dioxide (9CI) (CA INDEX NAME)



RN 532994-10-8 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 3,5-dihydro-4,6-diiodo-, 2,2-dioxide (9CI) (CA INDEX NAME)

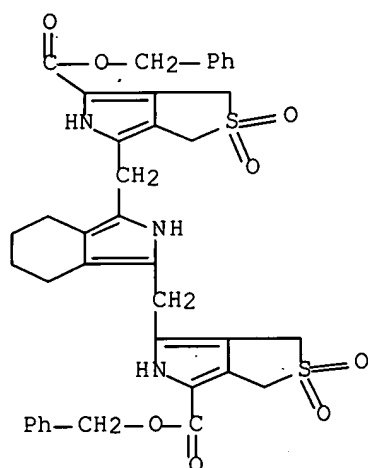


IT 532994-09-5P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(establishing a library of porphyrin dienes and dienophiles for  
cycloaddn. reactions)

RN 532994-09-5 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 6,6'-[(4,5,6,7-tetrahydro-5,8-methano-2H-isoindole-1,3-diyl)bis(methylene)]bis[3,5-dihydro-, bis(phenylmethyl) ester, 2,2,2',2'-tetraoxide (9CI) (CA INDEX NAME)



## RETABLE

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Atwood, J	1996	2, 4,		Comprehensive Supram	
Bell, T	2000	122	10661	J Am Chem Soc	HCAPLUS
Butler, D	1998			Synlett	
Clyde-Watson, Z	1998	22	1135	New J Chem	HCAPLUS
Crossley, M	2002		1122	Chem Commun (Cambrid	HCAPLUS
Crossley, M	1996		2675	Chem Soc, Perkin Tra	HCAPLUS
Crossley, M	1991		1569	J Chem Soc, Chem Com	HCAPLUS
Crossley, M	1995		2379	J Chem Soc, Chem Com	HCAPLUS
Faustino, M	1996	37	3569	Tetrahedron Lett	HCAPLUS
Flamigni, L	2001	25	1368	New J Chem	HCAPLUS
Head, N	1999	38	3219	Angew Chem, Int Ed	HCAPLUS
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Liddell, P	1994	35	995	Tetrahedron Lett	HCAPLUS
Napper, A	2000	122	5220	J Am Chem Soc	HCAPLUS
Reek, J	1997	36	361	Angew Chem, Int Ed	HCAPLUS
Reek, J	1998		11	Chem Commun (Cambrid	HCAPLUS
Reek, J	1999	64	6653	J Org Chem	HCAPLUS
Sanders, J	1998	4	1378	Chem--Eur J	HCAPLUS
Silva, A	1999		1767	Chem Commun (Cambrid	HCAPLUS
Silva, A	2002	67	726	J Org Chem	HCAPLUS
Silva, A	2000	41	3065	Tetrahedron Lett	HCAPLUS
Tome, A	1997		1199	Chem Commun (Cambrid	HCAPLUS
Vicente, M	1997	38	3639	Tetrahedron Lett	HCAPLUS
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Warrener, R	1998		585	Synlett	HCAPLUS

Warrenér, R	1998	593	Synlett	HCAPLUS
Zheng, G	1996	1119	Chem Lett	HCAPLUS

L32 ANSWER 11 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:151528 HCAPLUS Full-text

DOCUMENT NUMBER: 139:6701

TITLE: Porphyrin building blocks: Using a modified Barton-Zard approach to construct annulated pyrroles

AUTHOR(S): Johnstone, Ken D.; Pearce, Wayne A.; Pyke, Simon M.

CORPORATE SOURCE: Department of Chemistry, The University of Adelaide, SA 5005, Australia

SOURCE: Journal of Porphyrins and Phthalocyanines (2002), 6(11 &amp; 12), 661-672

CODEN: JPPHFZ; ISSN: 1088-4246

PUBLISHER: Society of Porphyrins &amp; Phthalocyanines

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 139:6701

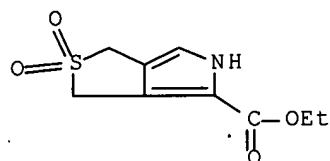
AB A modification of the Barton-Zard pyrrole synthesis involving condensation of isocyanoacetate esters with cyclic unsatd. sulfones using sodium hydride as base is demonstrated for the construction of annulated pyrroles.

IT 190449-12-8P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of porphyrin building blocks using a modified Barton-Zard approach to construct annulated pyrroles)

RN 190449-12-8 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 3,5-dihydro-, ethyl ester,  
2,2-dioxide (9CI) (CA INDEX NAME)



## RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
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Arnold, D	1999	52	421	Aust J Chem	HCAPLUS
Bag, N	1995	36	6409	Tetrahedron Lett	HCAPLUS
Bailey, W	1954	76	1932	J Am Chem Soc	HCAPLUS
Barton, D	1985		1098	J Chem Soc, Chem Com	HCAPLUS
Barton, D	1990	46	7587	Tetrahedron	HCAPLUS
Bitha, P	1988	25	1035	J Heterocycl Chem	HCAPLUS
Bobal, P	2001	38	527	J Heterocycl Chem	HCAPLUS
Boelle, J	1997		1451	Synthesis	HCAPLUS
Burns, D	1995	25	379	Synth Com	HCAPLUS
Chayer, S	2001	42	7759	Tetrahedron Lett	HCAPLUS
Chen, Q	2002	32	1031	Synth Com	HCAPLUS
Chen, S	1997	34	273	J Heterocycl Chem	HCAPLUS
Cheng, W	2001	66	5528	J Org Chem	HCAPLUS

de Leon, C	1997	53	7731	Tetrahedron	HCAPLUS
Elliott, W	1976	41	2469	J Org Chem	HCAPLUS
Finikova, O	2001		261	Chem Commun (Cambrid	HCAPLUS
Fumoto, Y	2000		2977	J Chem Soc, Perkin T	HCAPLUS
Fumoto, Y	2001		399	Synthesis	HCAPLUS
Gunter, M	1999		803	Chem Commun (Cambrid	HCAPLUS
Haake, G	1994	35	9703	Tetrahedron Lett	HCAPLUS
Halazy, S	1984	25	1421	Tetrahedron Lett	HCAPLUS
Hartman, G	1980	59	183	Org Synth	HCAPLUS
Hwang, S	2002	43	53	Tetrahedron Lett	HCAPLUS
Inomata, K	1987	60	1767	Bull Chem Soc Jpn	HCAPLUS
Ito, S	2000		893	Chem Commun (Cambrid	HCAPLUS
Ito, S	2000	52	399	Heterocycles	HCAPLUS
Ito, S	1997		3161	J Chem Soc, Perkin T	HCAPLUS
Kwart, H	1959	24	2060	J Org Chem	HCAPLUS
Lash, T	1998	63	8455	J Org Chem	HCAPLUS
Lash, T	1994		170	Synthesis	HCAPLUS
Lash, T	1994	35	2493	Tetrahedron Lett	HCAPLUS
Lash, T	1997	38	2031	Tetrahedron Lett	HCAPLUS
Lemal, D	1988	65	923	J Chem Educ	HCAPLUS
May, D	1992	57	4820	J Org Chem	HCAPLUS
Medforth, C	1990	31	3719	Tetrahedron Lett	HCAPLUS
Meinwald, J	1960	82	699	J Am Chem Soc	HCAPLUS
Mueller, W	1968	90	2075	J Am Chem Soc	HCAPLUS
Nakajima, S	1995	36	8457	Tetrahedron Lett	HCAPLUS
Obrecht, R	1985		400	Synthesis	HCAPLUS
Ono, N	1988		1511	Chem Lett	HCAPLUS
Ono, N	1998		1595	J Chem Soc, Perkin T	HCAPLUS
Ono, N	1994	31	707	J Heterocycl Chem	HCAPLUS
Ono, N	1990	46	7483	Tetrahedron	HCAPLUS
Padwa, A	1994	59	588	J Org Chem	HCAPLUS
Padwa, A	1997	74	147	Org Synth	HCAPLUS
Palmer, B	1987	17	601	Synth Com	HCAPLUS
Pearce, W	1998	213	61	Z Kristallogr - New	HCAPLUS
Pearce, W	2001	216	529	Z Kristallogr - New	HCAPLUS
Pelkey, E	1996		1909	Chem Commun (Cambrid	HCAPLUS
Pelkey, E	1999		1117	Synthesis	HCAPLUS
Perrin, D	1988			Purification of Labo	
Tang, J	1994	59	7793	J Org Chem	HCAPLUS
Uno, H	1994	67	1441	Bull Chem Soc Jpn	HCAPLUS
Uno, H	2000		4347	J Chem Soc, Perkin T	HCAPLUS
Uno, H	1999		471	Synthesis	HCAPLUS
Vicente, M	1997	38	3639	Tetrahedron Lett	HCAPLUS

L32 ANSWER 12 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:881502 HCAPLUS Full-text

DOCUMENT NUMBER: 139:230515

TITLE: Product class 13: 1H-pyrroles

AUTHOR(S): Black, D. StC.

CORPORATE SOURCE: School of Chemistry, The University of New South  
Wales, Sydney, 2052, Australia

SOURCE: Science of Synthesis (2002), 9, 441-552

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PUBLISHER: Georg Thieme Verlag

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

AB A review describing the preparation of 1H-pyrroles. Covered reactions include  
ring transformation and ring-closure reactions, substituent modifications.

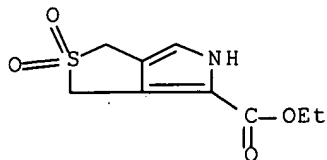
IT 190449-12-8P

RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation of pyrroles via ring-closure reactions, ring transformations,  
and substituent modifications)

RN 190449-12-8 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 3,5-dihydro-, ethyl ester,  
2,2-dioxide (9CI) (CA INDEX NAME)



# RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Aboutayab, K	1996	52	11329	Tetrahedron	HCAPLUS
Adamczyk, M	1996	52	14689	Tetrahedron	HCAPLUS
Adler, A	1967	32	476	J Org Chem	HCAPLUS
Alazard, J	1993	130	779	Bull Soc Chim Fr	HCAPLUS
Alberola, A	1990	31	1049	Heterocycles	HCAPLUS
Alberola, A	1990		2681	J Chem Soc, Perkin T	HCAPLUS
Aldabbagh, F	1997	38	7937	Tetrahedron Lett	HCAPLUS
Almerico, A	1994	37	1549	Heterocycles	HCAPLUS
Alper, H	1977	99	4330	J Am Chem Soc	HCAPLUS
Alvarez, A	1992	57	1653	J Org Chem	HCAPLUS
Amarnath, V	1991	56	6924	J Org Chem	HCAPLUS
Andersen, K	1993	36	1716	J Med Chem	HCAPLUS
Anderson, H	1965	43	409	Can J Chem	HCAPLUS
Anderson, H	1967	45	897	Can J Chem	HCAPLUS
Anderson, W	1986	16	387	Synth Commun	
Angelini, G	1975	105	961	Gazz Chim Ital	HCAPLUS
Angelini, G	1980	102	1377	J Am Chem Soc	HCAPLUS
Angelini, G	1980	45	1786	J Org Chem	HCAPLUS
Anon	1950	6		Heterocyclic Compound	
Anon	1990			The Chemistry of Het	
Antonio, Y	1994	72	15	Can J Chem	HCAPLUS
Aoyagi, K	1988		1891	Chem Lett	HCAPLUS
Aoyagi, Y	1996	37	9203	Tetrahedron Lett	HCAPLUS
Apparao, S	1981		65	Synthesis	HCAPLUS
Arcadi, A	1997		667	Synlett	HCAPLUS
Artis, D	1992	70	1838	Can J Chem	HCAPLUS
Artis, D	1994	59	2456	J Org Chem	HCAPLUS
Attanasi, O	1993		315	J Chem Soc, Perkin T	HCAPLUS
Attanasi, O	1986	18	299	Org Prep Proced Int	HCAPLUS
Attanasi, O	1997		1128	Synlett	HCAPLUS
Aubert, T	1989		1369	J Chem Soc, Perkin T	HCAPLUS
Avalos, M	1989	186	C7	Carbohydr Res	HCAPLUS
Baccolini, G	1987		788	J Chem Soc, Chem Com	HCAPLUS
Baciocchi, E	1992	57	6817	J Org Chem	HCAPLUS
Baciocchi, E	1993	58	7610	J Org Chem	HCAPLUS
Baciocchi, E	1993	34	3799	Tetrahedron Lett	HCAPLUS
Backvall, J	1981		59	J Chem Soc, Chem Com	
Badger, G	1964	17	987	Aust J Chem	HCAPLUS

Baldwin, J	1982		624	J Chem Soc, Chem Com	HCAPLUS
Baltazzi, E	1963	63	511	Chem Rev	HCAPLUS
Barcock, R	1993	34	1187	Tetrahedron Lett	HCAPLUS
Barker, P	1983	43	4849	J Org Chem	
Barluenga, J	1982	47	1696	J Org Chem	HCAPLUS
Barluenga, J	1996	61	2185	J Org Chem	HCAPLUS
Barluenga, J	1997	62	9229	J Org Chem	HCAPLUS
Barluenga, J	1975		642	Synthesis	HCAPLUS
Barnett, G	1980	58	409	Can J Chem	HCAPLUS
Barton, D	1985		1098	J Chem Soc, Chem Com	HCAPLUS
Barton, D	1986		2243	J Chem Soc, Perkin T	HCAPLUS
Barton, D	1990	46	7587	Tetrahedron	HCAPLUS
Battersby, A	1983		1240	J Chem Soc, Chem Com	HCAPLUS
Bauer, H	1970	736	1	Justus Liebigs Ann C	HCAPLUS
Baumes, R	1974		1147	Bull Soc Chim Fr	HCAPLUS
Baxter, A	1994		207	Synthesis	HCAPLUS
Bayer, H	1970	103	2356	Chem Ber	HCAPLUS
Bean, G	1967	32	228	J Org Chem	HCAPLUS
Bellamy, F	1975	3	395	Heterocycles	HCAPLUS
Benages, I	1978	43	4273	J Org Chem	HCAPLUS
Bertschy, H	1990	102	828	Angew Chem	HCAPLUS
Bertschy, H	1990	29	777	Angew Chem Int Ed En	
Beveridge, S	1971	24	1229	Aust J Chem	HCAPLUS
Black, D	1989	42	71	Aust J Chem	HCAPLUS
Black, D	1997	53	8565	Tetrahedron	HCAPLUS
Black, D	1997	53	8573	Tetrahedron	HCAPLUS
Boberg, F	1984		911	Liebigs Ann Chem	HCAPLUS
Boberg, F	1985		239	Liebigs Ann Chem	HCAPLUS
Boelle, J	1997		1451	Synthesis	HCAPLUS
Bogdal, D	1997	45	715	Heterocycles	HCAPLUS
Bohm, S	1989	54	200	Collect Czech Chem C	HCAPLUS
Bonnett, G	1963		1648	J Chem Soc	
Bordner, J	1965	30	3824	J Org Chem	
Boukou-Poba, J	1979		1717	Tetrahedron Lett	HCAPLUS
Bray, B	1990	55	6317	J Org Chem	HCAPLUS
Brennan, M	1986	24	2879	Heterocycles	HCAPLUS
Brimble, M	1990		311	J Chem Soc, Perkin T	HCAPLUS
Broadbent, H	1968	5	757	J Heterocycl Chem	HCAPLUS
Bruëkelman, S	1984		2801	J Chem Soc, Perkin T	HCAPLUS
Buchwald, S	1989	111	4486	J Am Chem Soc	HCAPLUS
Buchwald, S	1989	111	776	J Am Chem Soc	HCAPLUS
Bullock, E	1958		1430	J Chem Soc	HCAPLUS
Bumagin, N	1995	30	1537	Zh Org Khim	
Bundgaard, T	1975	19	345	J Magn Reson	HCAPLUS
Burns, D	1995	25	379	Synth Commun	HCAPLUS
Cadamuro, S	1993		273	J Chem Soc, Perkin T	HCAPLUS
Cadamuro, S	1993		2939	J Chem Soc, Perkin T	HCAPLUS
Caddick, S	1992		805	Synlett	HCAPLUS
Cambie, R	1990	20	1923	Synth Commun	HCAPLUS
Campi, E	1992	45	1167	Aust J Chem	HCAPLUS
Candy, C	1970		2563	J Chem Soc C	
Carrd, F	1993	12	2478	Organometallics	
Carter, P	1987	109	2706	J Am Chem Soc	
Cartoon, M	1982	234	123	J Organomet Chem	HCAPLUS
Chadwick, D	1984	4	155	Comprehensive Hetero	
Chadwick, D	1982		1343	J Chem Soc, Perkin T	HCAPLUS
Chadwick, D	1983		93	J Chem Soc, Perkin T	HCAPLUS
Chahma, M	1994		366	Synthesis	HCAPLUS
Chakrabarti, J	1974	11	417	J Heterocycl Chem	HCAPLUS
Chamberlin, K	1979	12	1567	Heterocycles	HCAPLUS



Chamberlin, K	1978	8	579	Synth Commun	HCAPLUS
Chan, H	1997		1515	Chem Commun (Cambrid	HCAPLUS
Chan, W	1994		2355	J Chem Soc, Perkin T	HCAPLUS
Chang, C	1995	60	7030	J Org Chem	HCAPLUS
Chapelle, J	1971		280	Bull Soc Chim Fr	HCAPLUS
Chatani, N	1986	27	4201	Tetrahedron Lett	HCAPLUS
Cheeseman, G	1979	166	139	J Organomet Chem	HCAPLUS
Chen, Q	1993	58	2599	J Org Chem	HCAPLUS
Chen, W	1992	70	151	Org Synth	HCAPLUS
Cheng, D	1976	13	1145	J Heterocycl Chem	HCAPLUS
Cheng, D	1976	13	1145	J Heterocycl Chem	HCAPLUS
Cheng, D	1977		1469	Tetrahedron Lett	HCAPLUS
Childs, R	1966		1950	J Chem Soc C	HCAPLUS
Chiu, P	1988	44	3531	Tetrahedron	HCAPLUS
Chiusoli, G	1989		262	Synthesis	HCAPLUS
Chong, R	1967	20	935	Aust J Chem	HCAPLUS
Chong, R	1967	20	935	Aust J Chem	HCAPLUS
Chou, S	1991		171	Synthesis	HCAPLUS
Cirrincione, G	1997		1169	Synthesis	HCAPLUS
Cocco, D	1982	47	5217	J Org Chem	HCAPLUS
Cohnen, E	1987		566	Synthesis	HCAPLUS
Cooksey, A	1970	26	5101	Tetrahedron	HCAPLUS
Cooney, J	1981	46	2570	J Org Chem	HCAPLUS
Cooney, J	1983	15	292	Org Prep Proced Int	HCAPLUS
Coppola, B	1997	38	7159	Tetrahedron Lett	HCAPLUS
Corriu, R	1993	49	4603	Tetrahedron	HCAPLUS
Cox, M	1971		1974	J Chem Soc C	
Cristau, H	1985		980	Bull Soc Chim Fr	HCAPLUS
Crump, D	1977	42	105	J Org Chem	HCAPLUS
Dalla Croce, P	1987	24	1793	J Heterocycl Chem	HCAPLUS
Danks, T	1990		761	J Chem Soc, Perkin T	HCAPLUS
Danks, T	1988	29	1425	Tetrahedron Lett	
Darbeau, R	1997	62	8091	J Org Chem	HCAPLUS
Dave, C	1987	64	713	J Indian Chem Soc	HCAPLUS
Dave, C	1987	64	713	J Indian Chem Soc	HCAPLUS
Davidson, D	1938	3	361	J Org Chem	HCAPLUS
Davies, H	1991	56	5696	J Org Chem	HCAPLUS
Davies, H	1993	49	5203	Tetrahedron	HCAPLUS
Davies, H	1989	30	4653	Tetrahedron Lett	HCAPLUS
DeShong, P	1985	50	2309	J Org Chem	HCAPLUS
De Kimpe, N	1984		82	J Chem Res	HCAPLUS
De Leon, C	1996	61	8730	J Org Chem	HCAPLUS
De Leon, C	1997	3	7731	Tetrahedron	
De Rosa, M	1993		1757	J Chem Soc, Chem Com	HCAPLUS
De Rosa, M	1989	4	5347	J Org Chem	
De Rosa, M	1995	36	9261	Tetrahedron Lett	HCAPLUS
Dekura, F	1997		825	Chem Lett	HCAPLUS
Del Valle, J	1995	32	899	J Heterocycl Chem	HCAPLUS
Dell'Erba, C	1995	51	5181	Tetrahedron	HCAPLUS
Demopoulos, V	1988	25	635	J Heterocycl Chem	HCAPLUS
Demopoulos, V	1986	18	278	Org Prep Proced Int	HCAPLUS
Dhanak, D	1986		2181	J Chem Soc, Perkin T	HCAPLUS
Di Santo, R	1996	26	1839	Synth Commun	HCAPLUS
Dickinson, C	1962	27	2470	J Org Chem	HCAPLUS
Dimroth, K	1961	639	102	Justus Liebigs Ann C	HCAPLUS
Dischler, B	1961	16	1180	Z Naturforsch, Teil	
Dragisich, V	1990	112	1251	J Am Chem Soc	HCAPLUS
Drinan, M	1994	31	255	J Heterocycl Chem	HCAPLUS
Duhamel, L	1974		3167	Tetrahedron Lett	HCAPLUS
Duhamel, P	1973		1339	Tetrahedron Lett	HCAPLUS

Dumoulin, H	1995	32	1703	J Heterocycl Chem	HCAPLUS
Dumoulin, H	1997	34	13	J Heterocycl Chem	HCAPLUS
D'Auria, M	1997		2369	J Chem Soc, Perkin T	HCAPLUS
Earle, M	1990	31	4229	Tetrahedron Lett	HCAPLUS
Eberlin, M	1988	53	2084	J Org Chem	HCAPLUS
Edwards, M	1984	49	3503	J Org Chem	HCAPLUS
Elguero, J	1974	39	357	J Org Chem	HCAPLUS
Elming, N	1952	6	867	Acta Chem Scand	HCAPLUS
Engel, N	1978	90	719	Angew Chem	HCAPLUS
Engel, N	1978	17	676	Angew Chem Int Ed En	
Eyley, S	1988	29	2997	Tetrahedron Lett	HCAPLUS
Fabiano, E	1991		3371	J Chem Soc, Perkin T	HCAPLUS
Fan, J	1997	16	4232	Organometallics	HCAPLUS
Fang, Y	1995	25	1857	Synth Commun	HCAPLUS
Fanghanel, E	1969	311	388	J Prakt Chem	
Fegley, M	1957	79	4144	J Am Chem Soc	HCAPLUS
Fischer, H	1934	3		Die Chemie des Pyrro	HCAPLUS
Fischer, H	1943	II	202	Org Synth, Coll	
Fischer, H	1943	II	217	Org Synth, Coll	
Friedman, M	1965	30	859	J Org Chem	HCAPLUS
Fritz, H	1971	744	81	Justus Liebigs Ann C	HCAPLUS
Fuhrhop, J	1985		699	Liebigs Ann Chem	
Fujii, H	1997	38	1427	Tetrahedron Lett	HCAPLUS
Fursmer, A	1995	60	6637	J Org Chem	
Furstner, A	1994	3	1047	Tetrahedron Lett	
Furusho, Y	1996		183	J Chem Soc, Perkin T	HCAPLUS
Gage, J	1997	38	7007	Tetrahedron Lett	HCAPLUS
Ganske, J	1989	54	4801	J Org Chem	HCAPLUS
Gao, Y	1996	37	7787	Tetrahedron Lett	HCAPLUS
Gewald, K	1976	318	663	J Prakt Chem	HCAPLUS
Gewald, K	1992	334	491	J Prakt Chem	HCAPLUS
Ghosez, L	1977	7	895	Heterocycles	HCAPLUS
Gilchrist, T	1997		3005	J Chem Soc, Perkin T	HCAPLUS
Gilow, H	1991	28	1025	J Heterocycl Chem	HCAPLUS
Gilow, H	1981	46	2221	J Org Chem	HCAPLUS
Girard, Y	1983	48	3220	J Org Chem	HCAPLUS
Gjos, N	1971	25	2596	Acta Chem Scand	
Gompper, R	1979		213	Synthesis	HCAPLUS
Gossauer, A	1974			Die Chemie der Pyrro	
Gossauer, A	1976	59	1698	Helv Chim Acta	HCAPLUS
Gotthardt, H	1970	103	2625	Chem Ber	HCAPLUS
Grandberg, I	1979	15	501	Chem Heterocycl Comp	
Grandberg, I	1979	15	620	Khim Geterotsikl Soe	
Greenhouse, R	1985	50	2961	J Org Chem	HCAPLUS
Grigg, R	1990	46	4003	Tetrahedron	HCAPLUS
Grob, C	1953	36	49	Helv Chim Acta	HCAPLUS
Gronowitz, S	1961	26	2615	J Org Chem	HCAPLUS
Gupton, J	1990	55	4735	J Org Chem	HCAPLUS
Gupton, J	1992	57	5480	J Org Chem	HCAPLUS
Gupton, J	1996	52	6879	Tetrahedron	HCAPLUS
Gupton, J	1998	54	5075	Tetrahedron	HCAPLUS
Hamby, J	1993	35	843	Heterocycles	HCAPLUS
Hamdan, A	1983	13	741	Synth Commun	HCAPLUS
Hantzsch, A	1890	23	1474	Ber Dtsch Chem Ges	
Harbuck, J	1971	36	853	J Org Chem	
Harris, R	1972	25	985	Aust J Chem	HCAPLUS
Harsanyi, M	1987	52	2209	J Org Chem	HCAPLUS
Hasan, I	1981	46	157	J Org Chem	HCAPLUS
Hauptmann, S	1972	314	353	J Prakt Chem	HCAPLUS
Hauptmann, S	1968		1317	Tetrahedron Lett	HCAPLUS

Hauptmann, S	1968	8	333	Z Chem	HCAPLUS
Hauptmann, S	1969	9	22	Z Chem	
Heaney, H	1988		1161	J Chem Soc, Chem Com	HCAPLUS
Heaney, H	1973		499	J Chem Soc, Perkin T	HCAPLUS
Heine, H	1966	31	3924	J Org Chem	HCAPLUS
Hemetsberger, H	1977		247	J Chem Res	HCAPLUS
Hendrickson, J	1964	86	107	J Am Chem Soc	HCAPLUS
Hershenson, F	1972	37	3111	J Org Chem	HCAPLUS
Hershenson, F	1988		999	Synthesis	HCAPLUS
Herz, W	1947	69	1698	J Am Chem Soc	HCAPLUS
Herz, W	1951	73	4921	J Am Chem Soc	HCAPLUS
Ho-Hoang, A	1996	26	1289	Synth Commun	HCAPLUS
Hodges, L	1993	58	4788	J Org Chem	HCAPLUS
Hojdren, R	1946	68	1198	J Am Chem Soc	
Hollins, R	1979	16	993	J Heterocycl Chem	HCAPLUS
Holy, A	1965	30	346	Collect Czech Chem C	HCAPLUS
Hombrecher, H	1990		1062	Synthesis	
Hou, D	1992	75	2608	Helv Chim Acta	HCAPLUS
Houwing, H	1981	18	1127	J Heterocycl Chem	HCAPLUS
Houwing, H	1981	18	1133	J Heterocycl Chem	HCAPLUS
Houwing, H	1976		143	Tetrahedron Lett	HCAPLUS
Huang, W	1996		1893	J Chem Soc, Perkin T	HCAPLUS
Hubert, C	1994		51	Synthesis	HCAPLUS
Huisgen, R	1970	103	2611	Chem Ber	HCAPLUS
Hutchison, D	1996	37	2887	Tetrahedron Lett	HCAPLUS
Ibragimov, I	1976	12	659	Chem Heterocycl Comp	
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Igarashi, S	1989		737	Chem Lett	HCAPLUS
Iqbal, Z	1988	29	2577	Tetrahedron Lett	HCAPLUS
Ishibashi, H	1992		2821	J Chem Soc, Perkin T	HCAPLUS
Ishikura, M	1987	24	377	J Heterocycl Chem	
Isomura, K	1972		629	Chem Lett	HCAPLUS
Itahara, T	1979		151	Synthesis	HCAPLUS
Ito, S	1997		3161	J Chem Soc, Perkin T	HCAPLUS
Iwasawa, N	1997	119	1486	J Am Chem Soc	HCAPLUS
Jacobi, P	1992	33	6239	Tetrahedron Lett	HCAPLUS
James, D	1962	27	3346	J Org Chem	HCAPLUS
Jeandon, C	1993	130	625	Bull Soc Chim Fr	HCAPLUS
Jefford, C	1986	69	2048	Helv Chim Acta	HCAPLUS
Jefford, C	1996	7	1069	Tetrahedron: Asymmet	HCAPLUS
Johnson, A	1966		1950	J Chem Soc C	
Jones, G	1996	2	1	Comprehensive Hetero	HCAPLUS
Jones, R	1977			The Chemistry of Pyr	
Kaiser, H	1984	49	4203	J Org Chem	HCAPLUS
Kakushima, M	1983	48	3214	J Org Chem	HCAPLUS
Kamigata, N	1994		1339	J Chem Soc, Perkin T	HCAPLUS
Kamigata, N	1994	24	2049	Synth Commun	HCAPLUS
Karpfen, A	1979	44	374	J Org Chem	HCAPLUS
Kashima, C	1988		62	J Chem Res	HCAPLUS
Kato, T	1971	19	292	Chem Pharm Bull	HCAPLUS
Katritzky, A	1997	44	67	Heterocycles	HCAPLUS
Katritzky, A	1997	34	1379	J Heterocycl Chem	HCAPLUS
Katritzky, A	1993	58	1987	J Org Chem	HCAPLUS
Katritzky, A	1994	59	4551	J Org Chem	HCAPLUS
Katritzky, A	1996	61	1624	J Org Chem	HCAPLUS
Katritzky, A	1997	62	4148	J Org Chem	HCAPLUS
Katritzky, A	1988	20	585	Org Prep Proced Int	HCAPLUS
Katritzky, A	1991		863	Synthesis	
Katritzky, A	1994		93	Synthesis	HCAPLUS
Katritzky, A	1995		1315	Synthesis	HCAPLUS

Katritzky, A	1986	42	1623	Tetrahedron	HCAPLUS
Katritzky, A	1992	48	4971	Tetrahedron	HCAPLUS
Katritzky, A	1995	51	13271	Tetrahedron	HCAPLUS
Katritzky, A	1995	36	343	Tetrahedron Lett	HCAPLUS
Kayama, Y	1977	14	171	J Heterocycl Chem	HCAPLUS
Kazembe, T	1980	36	2125	Tetrahedron	HCAPLUS
Keating, T	1996	118	2574	J Am Chem Soc	HCAPLUS
Kelly, T	1993	49	1009	Tetrahedron	HCAPLUS
Ketcha, D	1997	9	97	Progress in Heterocy	HCAPLUS
Ketcha, D	1998	10	109	Progress in Heterocy	HCAPLUS
Khetan, S	1968	24	1567	Tetrahedron	
Khetan, S	1969	25	527	Tetrahedron	HCAPLUS
Kiely, J	1987	24	1137	J Heterocycl Chem	HCAPLUS
Kim, I	1998	39	1087	Tetrahedron Lett	HCAPLUS
Kleinspehn, G	1955	77	1546	J Am Chem Soc	HCAPLUS
Kochhar, K	1984	49	3222	J Org Chem	HCAPLUS
Komatsu, M	1993	58	6620	J Org Chem	HCAPLUS
Konakahara, T	1993	35	1171	Heterocycles	HCAPLUS
Konieczny, M	1992	33	6939	Tetrahedron Lett	
Korakas, D	1994		164	Synthesis	HCAPLUS
Korostova, S	1985	21	367	J Org Chem USSR (Engl	
Korostova, S	1985	21	406	Zh Org Khim	HCAPLUS
Korostova, S	1984	20	1790	Zh Org Khim, Org Che	
Kost, A	1956	26	565	Zh Obshch Khim	HCAPLUS
Kuser, P	1971	54	969	Helv Chim Acta	HCAPLUS
Kusumoto, T	1986	27	4197	Tetrahedron Lett	HCAPLUS
La Porta, P	1994		287	Synthesis	HCAPLUS
Lamon, R	1969	6	261	J Heterocycl Chem	HCAPLUS
Lash, T	1991	28	1671	J Heterocycl Chem	HCAPLUS
Lash, T	1993	30	525	J Heterocycl Chem	HCAPLUS
Lash, T	1994		170	Synthesis	HCAPLUS
Lash, T	1994	35	2493	Tetrahedron Lett	HCAPLUS
Lash, T	1997	38	2031	Tetrahedron Lett	HCAPLUS
Laurent, A	1982	23	655	Tetrahedron Lett	HCAPLUS
Lavilla, R	1997	53	13959	Tetrahedron	HCAPLUS
Lee, C	1978	43	3727	J Org Chem	HCAPLUS
Liddell, P	1993	49	1343	Tetrahedron	HCAPLUS
Likhitwitayawuid, K	1987	43	3689	Tetrahedron	HCAPLUS
Madsen, J	1968	24	3369	Tetrahedron	HCAPLUS
Magedov, I	1995	36	4619	Tetrahedron Lett	HCAPLUS
Makhsumov, A	1970	6	120	Chem Heterocycl Comp	
Makhsumov, A	1970	6	393	J Org Chem USSR (Engl	
Makhsumov, A	1970	6	125	Khim Geterotsikl Soe	
Makhsumov, A	1970	6	401	Zh Org Khim	HCAPLUS
Mamedov, E	1983	19	1243	Chem Heterocycl Comp	
Mamedov, E	1983	19	1561	Khim Geterotsikl Soe	
Mandell, L	1965	2	479	J Heterocycl Chem	
Martina, S	1991	41	403	Synth Met	HCAPLUS
Martina, S	1991		613	Synthesis	HCAPLUS
Maryanoff, B	1977	14	177	J Heterocycl Chem	HCAPLUS
Maryanoff, B	1979	44	4410	J Org Chem	HCAPLUS
Masquelin, T	1995		276	Synthesis	HCAPLUS
Mataka, S	1982		157	Synthesis	HCAPLUS
McLeod, M	1996	61	1180	J Org Chem	HCAPLUS
Mendez, J	1996	37	4099	Tetrahedron Lett	HCAPLUS
Merah, B	1980		552	Bull Soc Chim Fr	HCAPLUS
Messinger, P	1986		213	Synthesis	HCAPLUS
Meunier, A	1988		381	Synthesis	HCAPLUS
Meyer, H	1981		1534	Liebigs Ann Chem	HCAPLUS
Middleton, W	1958	80	2822	J Am Chem Soc	HCAPLUS

Mikhlina, E	1984	20	149	Khim Geterotsikl Soe	
Minato, A	1981	22	5319	Tetrahedron Lett	HCAPLUS
Minguez, J	1996	37	4263	Tetrahedron Lett	HCAPLUS
Mondelli, R	1971	3	7	Org Magn Reson	HCAPLUS
Montforts, F	1985		2301	Liebig's Ann Chem	HCAPLUS
Monti, D	1990	120	587	Gazz Chim Ital	HCAPLUS
Morgan, K	1971	27	245	Tetrahedron	HCAPLUS
Moskal, J	1986	51	4131	J Org Chem	HCAPLUS
Motekaitis, R	1970	35	2504	J Org Chem	HCAPLUS
Muchowski, J	1984	67	1168	Helv Chim Acta	HCAPLUS
Muchowski, J	1987	17	863	Synth Commun	HCAPLUS
Mukaiyama, T	1982	28	203	Org React	HCAPLUS
Murahashi, S	1974		931	J Chem Soc, Chem Com	HCAPLUS
Muratake, H	1996	44	67	Chem Pharm Bull	HCAPLUS
Nagafuji, P	1996	61	4999	J Org Chem	HCAPLUS
Nakajima, S	1995	36	8457	Tetrahedron Lett	HCAPLUS
Nayyar, N	1997	62	982	J Org Chem	HCAPLUS
Negro, A	1988	20	414	Org Prep Proced Int	HCAPLUS
Neier, R	1996	2	35	Adv Nitrogen Heteroc	HCAPLUS
Nenajdenko, V	1997		1349	Synlett	HCAPLUS
Nygaard, L	1969	3	491	J Mol Struct	HCAPLUS
Oda, K	1996	43	463	Heterocycles	HCAPLUS
Okamoto, S	1997	119	6984	J Am Chem Soc	HCAPLUS
Ono, N	1988	61	4470	Bull Chem Soc Jpn	HCAPLUS
Ono, N	1989	62	3386	Bull Chem Soc Jpn	HCAPLUS
Ono, N	1994	31	707	J Heterocycl Chem	HCAPLUS
Ozaki, S	1996	44	2020	Chem Pharm Bull	HCAPLUS
Padwa, A	1986	119	813	Chem Ber	HCAPLUS
Padwa, A	1975	97	4682	J Am Chem Soc	HCAPLUS
Padwa, A	1967	4	118	J Heterocycl Chem	HCAPLUS
Padwa, A	1978	43	381	J Org Chem	HCAPLUS
Padwa, A	1985	50	4006	J Org Chem	HCAPLUS
Padwa, A	1979		107	Tetrahedron Lett	HCAPLUS
Padwa, A	1988	29	3041	Tetrahedron Lett	HCAPLUS
Paine, J	1985	50	5598	J Org Chem	HCAPLUS
Paine, J	1987	52	3986	J Org Chem	HCAPLUS
Papadopoulos, E	1968		1721	Tetrahedron Lett	
Parvi, N	1997	62	2649	J Org Chem	
Patterson, J	1975	97	360	J Am Chem Soc	HCAPLUS
Patterson, J	1968	33	2057	J Org Chem	HCAPLUS
Pedersen, C	1973	27	271	Acta Chem Scand	HCAPLUS
Pelkey, E	1997		1873	Chem Commun (Cambrid	HCAPLUS
Petruso, S	1990	27	1209	J Heterocycl Chem	HCAPLUS
Petruso, S	1990	27	1277	J Heterocycl Chem	HCAPLUS
Petruso, S	1994	31	941	J Heterocycl Chem	
Pfeiffer, G	1976		383	Justus Liebig's Ann C	HCAPLUS
Pfoertner, K	1980	63	658	Helv Chim Acta	HCAPLUS
Pindur, U	1986		1628	Liebig's Ann Chem	
Pinna, G	1993		210	J Chem Res	HCAPLUS
Pizzorno, M	1977	42	909	J Org Chem	HCAPLUS
Plieninger, H	1970		586	Synthesis	HCAPLUS
Plieninger, H	1970		587	Synthesis	HCAPLUS
Prasad, A	1997	53	16711	Tetrahedron	HCAPLUS
Prasad, J	1988	29	4253	Tetrahedron Lett	HCAPLUS
Qui, Z	1994	35	4319	Tetrahedron Lett	
Qui, Z	1995	36	5119	Tetrahedron Lett	
Quiclet-Sire, B	1995	36	9469	Tetrahedron Lett	HCAPLUS
Quizon-Colquitt, D	1993	30	477	J Heterocycl Chem	HCAPLUS
Ramondenc, Y	1994	106	939	Angew Chem	HCAPLUS
Ramondenc, Y	1994	33	889	Angew Chem Int Ed En	

Rapoport, H	1962	84	635	J Am Chem Soc	
Rezzano, I	1982	47	3059	J Org Chem	HCAPLUS
Ried, W	1971	750	97	Justus Liebigs Ann C	HCAPLUS
Rigaudy, J	1969		2765	Bull Soc Chim Fr	HCAPLUS
Rio, G	1974		2824	Bull Soc Chim Fr	HCAPLUS
Rokach, J	1981	22	4901	Tetrahedron Lett	HCAPLUS
Roomi, M	1970	48	1689	Can J Chem	HCAPLUS
Rosenmund, P	1968	80	702	Angew Chem	
Rosenmund, P	1968	7	733	Angew Chem Int Ed En	HCAPLUS
Roskamp, E	1989	54	4736	J Org Chem	HCAPLUS
Roth, H	1971	304	73	Arch Pharm	HCAPLUS
Ruhlmann, K	1969	311	844	J Prakt Chem	
Ruhlmann, K	1971		236	Synthesis	
Saikachi, H	1979	27	2857	Chem Pharm Bull	HCAPLUS
Sammes, M	1982	32	233	Adv Heterocycl Chem	HCAPLUS
Santiago, B	1995	60	4947	J Org Chem	HCAPLUS
Sayre, L	1993	5	19	Chem Res Tox	
Schloemer, G	1994	59	5230	J Org Chem	HCAPLUS
Schmitz, E	1976	318	471	J Prakt Chem	HCAPLUS
Schulte, K	1963	96	1470	Chem Ber	HCAPLUS
Schulte, K	1965	98	98	Chem Ber	HCAPLUS
Schultz, G	1977	89	256	Angew Chem	
Schultz, G	1977	16	252	Angew Chem Int Ed En	
Schumacher, D	1981	46	5060	J Org Chem	HCAPLUS
Sessler, J	1992	70	68	Org Synth	HCAPLUS
Severin, T	1977	110	491	Chem Ber	HCAPLUS
Sheradsky, T	1970		25	Tetrahedron Lett	HCAPLUS
Siedel, W	1943	554	162	Justus Liebigs Ann C	HCAPLUS
Silverstein, R	1963	IV	831	Org Synth, Coll	
Smith, L	1969	34	633	J Org Chem	HCAPLUS
Spreitzer, H	1997	45	1989	Heterocycles	HCAPLUS
Stapfer, C	1970	7	651	J Heterocycl Chem	HCAPLUS
Stetter, H	1979	16	839	J Heterocycl Chem	HCAPLUS
Stork, G	1970		445	J Chem Soc D	HCAPLUS
Sundberg, R	1984	4	313	Comprehensive Hetero	
Sundberg, R	1996	2	119	Comprehensive Hetero	HCAPLUS
Sundberg, R	1994	6	110	Progress in Heterocy	HCAPLUS
Sundberg, R	1995	7	106	Progress in Heterocy	HCAPLUS
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Suss, O	1955	93	91	Justus Liebigs Ann C	
Suzuki, M	1974	39	1980	J Org Chem	HCAPLUS
Swan, G	1970		285	J Chem Soc C	HCAPLUS
Szakal-Quin, A	1986	51	621	J Org Chem	
Tamaru, Y	1978	43	3370	J Org Chem	HCAPLUS
Tamura, Y	1982	30	915	Chem Pharm Bull	HCAPLUS
Tanaseichuk, B	1969	5	144	Zh Org Khim	HCAPLUS
Tanaseichuk, B	1971	7	1264	Zh Org Khim	HCAPLUS
Tani, M	1996	44	48	Chem Pharm Bull	HCAPLUS
Taylor, E	1985	26	5963	Tetrahedron Lett	HCAPLUS
ten Have, R	1996		871	Synthesis	HCAPLUS
Terry, W	1965		4389	J Chem Soc	HCAPLUS
Texier, F	1990	46	3515	Tetrahedron	HCAPLUS
Tian, W	1993		101	J Chem Soc, Chem Com	HCAPLUS
Tikhonova, L	1975	11	2579	J Org Chem USSR (Engl	
Tikhonova, L	1975	11	2510	Zh Org Khim	HCAPLUS
Tramontini, M	1973		703	Synthesis	HCAPLUS
Tramontini, M	1990	46	1791	Tetrahedron	HCAPLUS
Tratmer, R	1974	11	89	J Heterocycl Chem	
Treibs, A	1957	90	79	Chem Ber	HCAPLUS
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Trofimov, B	1990	51	178	Adv Heterocycl Chem	
Trofimov, B	1980	16	979	Chem Heterocycl Comp	
Trofimov, B	1985	21	46	Chem Heterocycl Comp	
Trofimov, B	1994	37	1193	Heterocycles	HCAPLUS
Trofimov, B	1980	16	1299	Khim Geterotsikl Soe	
Trofimov, B	1985	21	59	Khim Geterotsikl Soe	
Trost, B	1980	45	2741	J Org Chem	HCAPLUS
Tsuge, O	1982	19	1411	Heterocycles	HCAPLUS
Tsuge, O	1983	20	2133	Heterocycles	HCAPLUS
Umio, S	1969	17	576	Chem Pharm Bull	HCAPLUS
Utimoto, K	1981	22	4277	Tetrahedron Lett	HCAPLUS
van Leusen, A	1979	16	111	J Heterocycl Chem, S	
van Leusen, A	1972		5337	Tetrahedron Lett	HCAPLUS
van Leusen, D	1992	57	2245	J Org Chem	HCAPLUS
van Leusen, D	1984	103	41	Rec Trav Chim Pays-B	HCAPLUS
van Nispen, S	1980	21	3723	Tetrahedron Lett	HCAPLUS
Vedejs, E	1993	8	1341	J Org Chem	
Vedejs, E	1997	62	4763	J Org Chem	HCAPLUS
Vicente, M	1997	38	3639	Tetrahedron Lett	HCAPLUS
Vogel, C	1993	105	1116	Angew Chem	HCAPLUS
Vogel, C	1993	32	1051	Angew Chem Int Ed En	
Wang, J	1994	50	6181	Tetrahedron	HCAPLUS
Wang, J	1994	35	3679	Tetrahedron Lett	HCAPLUS
Wang, J	1995	36	2823	Tetrahedron Lett	HCAPLUS
Wang, J	1995	36	7043	Tetrahedron Lett	HCAPLUS
Wang, J	1996	37	3247	Tetrahedron Lett	
Wasley, J	1973	3	303	Synth Commun	HCAPLUS
Wasserman, H	1989	28	629	Heterocycles	HCAPLUS
Wiegand, G	1971	14	214	J Med Chem	HCAPLUS
Wineholt, R	1966	31	48	J Org Chem	HCAPLUS
Wittig, G	1973		3517	Tetrahedron Lett	HCAPLUS
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Xie, M	1993	49	2185	Tetrahedron	HCAPLUS
Xu, R	1981	22	4899	Tetrahedron Lett	HCAPLUS
Xu, Z	1997	38	3461	Tetrahedron Lett	HCAPLUS
Yagi, T	1997		1063	Synlets	HCAPLUS
Yamamoto, Y	1996	37	7801	Tetrahedron Lett	HCAPLUS
Yamamoto, Y	1996	37	7801	Tetrahedron Lett	HCAPLUS
Young, D	1943	II	219	Org Synth, Coll	
Yuan, C	1993		473	Synthesis	HCAPLUS
Zakharov, V	1996	66	1321	Zh Obshch Khim	HCAPLUS
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Zbiral, E	1972	2	29	Phosphorus Relat Gro	HCAPLUS

L32 ANSWER 13 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:194786 HCAPLUS Full-text

DOCUMENT NUMBER: 134:237385

TITLE: Preparation of *pyrrolidines* and their use as herbicides

INVENTOR(S): Kato, Masahiko; Yamada, Yasuo; Sato, Atsushi; Takahashi, Akihiro

PATENT ASSIGNEE(S): Nippon Soda Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 24 pp.

CODEN: JKXXAF

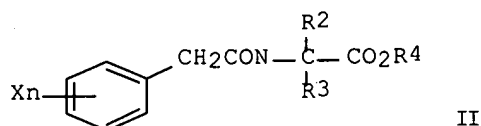
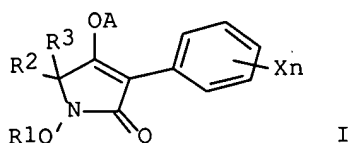
DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001072661	A	20010321	JP 1999-250404	19990903
PRIORITY APPLN. INFO.:			JP 1999-250404	19990903
OTHER SOURCE(S):	CASREACT 134:237385; MARPAT 134:237385			
GI				



AB **Pyrrolidines** I [A = H, C1-6 (halo)alkyl, C2-6 alkenyl, (un)substituted PhCH<sub>2</sub>, C1-6 alkylsulfonyl, etc.; R<sub>1</sub> = H, C1-6 (halo)alkyl, C2-6 alkenyl, C3-6 cycloalkyl, (un)substituted PhCH<sub>2</sub>, etc.; R<sub>2</sub>, R<sub>3</sub> = H, C1-6 alkyl; R<sub>2</sub>R<sub>3</sub> may form ring; X = halo, NO<sub>2</sub>, C1-6 (halo)alkyl, C1-6 alkoxy; n = 0-5] are prepared by cyclocondensation of benzene derivs. II (X, n, R<sub>1</sub>-R<sub>3</sub> = same as above; R<sub>4</sub> = C1-6 alkyl), followed by optional modification of the resulting products I (A = H; R<sub>1</sub>-R<sub>3</sub>, X, n = same as above). Thus, Et 2-methyl-2-[N-(2,4,6-trimethylphenylacetyl)methoxyamino] propionate was refluxed with Me<sub>3</sub>COK in THF for 10 min to give 84% I (A = H, R<sub>1</sub> = R<sub>2</sub> = R<sub>3</sub> = Me, Xn = 2,4,6-Me<sub>3</sub>), which at 2000 g/ha showed 100% herbicidal activity on *Digitaria adscendens* and *Setaria faberi*.

L32 ANSWER 14 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:504598 HCAPLUS Full-text

DOCUMENT NUMBER: 135:242097

TITLE: Vinyl sulfones in solid-phase synthesis: preparation of 4,5,6,7-tetrahydroisindole derivatives

AUTHOR(S): Cheng, Wei-Chieh; Olmstead, Marilyn M.; Kurth, Mark J.

CORPORATE SOURCE: Department of Chemistry, University of California, Davis, CA, 95616-5295, USA

SOURCE: Journal of Organic Chemistry (2001), 66(16), 5528-5533  
CODEN: JOCEAH; ISSN: 0022-3263

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 135:242097

AB The preparation of functionalized 4,5,6,7-tetrahydroisindole via a traceless solid-phase sulfone linker strategy is described. Thermolytic extrusion of SO<sub>2</sub> from polymer-bound 3-(phenylsulfonyl)-3-sulfolene generated polymer-bound 2-(phenylsulfonyl)-1,3-butadiene in situ, which underwent Diels-Alder cycloaddn. with various dienophiles to furnish vinyl sulfone resins. To complete a traceless linker cleavage strategy, (p-tolylsulfonyl)methyl



isocyanide or Et isocyanoacetate was employed to react with the vinyl sulfone moiety to liberate functionalized 4,5,6,7-tetrahydroisoindole products from the resin. Using this chemical, nine tetrahydroisoindole derivs. were prepared in 32-41% overall yields from polystyrene/divinylbenzene sulfinat.

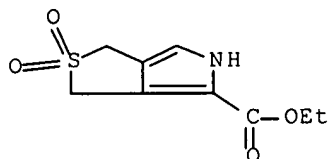
IT 190449-12-8P

RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation and solid-phase Diels-Alder reactions of resin-bound (phenylsulfonyl)sulfolene derivs. to isoindole derivs.)

RN 190449-12-8 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 3,5-dihydro-, ethyl ester, 2,2-dioxide (9CI) (CA INDEX NAME)



# RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
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Andell, O	1985	26	4555	Tetrahedron Lett	HCAPLUS
Ando, K	1994		741	Synlett	HCAPLUS
Back, T	1981	46	3249	J Org Chem	HCAPLUS
Backvall, J	1998	98	2291	Chem Rev	
Backvall, J	1987	109	6396	J Am Chem Soc	
Backvall, J	1993	58	5221	J Org Chem	
Backvall, J	1988	29	1445	Tetrahedron Lett	
Bailey, W	1954	76	1932	J Am Chem Soc	HCAPLUS
Cheng, W	1999	64	8557	J Org Chem	HCAPLUS
Chou, S	1989	36	149	J Chin Chem Soc	HCAPLUS
Chou, S	1990	55	1270	J Org Chem	HCAPLUS
Chou, T	1987	52	3394	J Org Chem	HCAPLUS
Chou, T	1988	53	3020	J Org Chem	HCAPLUS
Crowley, J	1976	9	135	Acc Chem Res	HCAPLUS
Dolle, R	1999	1	235	J Comb Chem	HCAPLUS
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Farrall, M	1976	24	3877	J Org Chem	
Franzen, R	2000	2	195	J Comb Chem	HCAPLUS
Fyles, T	1976	54	935	Can J Chem	HCAPLUS
Fyles, T	1978	56	1031	Can J Chem	HCAPLUS
Haake, G	1994	35	9703	Tetrahedron Lett	HCAPLUS
Halm, C	1997	38	7709	Tetrahedron Lett	HCAPLUS
Hoffmann, H	1990	46	5591	Tetrahedron	HCAPLUS
Hopkins, P	1978	43	1209	J Org Chem	
Hoppe, D	1974	13	789	Angew Chem, Int Ed E	
Inomata, K	1978	51	3341	Bull Chem Soc Jap	HCAPLUS
Kantorowski, E	1997	62	6797	J Org Chem	HCAPLUS
Lorsbach, B	1999	99	1549	Chem Rev	HCAPLUS
Padwa, A	1989	54	4232	J Org Chem	HCAPLUS
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Sammelsohn, R	2001  101  137	Chem Rev	HCAPLUS
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Vicente, M	1997  38  3639	Tetrahedron Lett	HCAPLUS
Wang, J	1999  1  524	J Comb Chem	HCAPLUS
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L32 ANSWER 15 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:126741 HCAPLUS Full-text

DOCUMENT NUMBER: 134:340407

TITLE: Cycloaddition reaction of [60]fullerene with 3,4-fused pyrrolo-3-sulfolenes

AUTHOR(S): Ishida, Hiroshi; Itoh, Kenji; Ito, Satoshi; Ono, Noboru; Ohno, Masatomi

CORPORATE SOURCE: Department of Molecular Design and Engineering, Graduate School of Engineering, Nagoya University, Nagoya, 464-8603, Japan

SOURCE: Synlett (2001), (2), 296-298  
CODEN: SYNLES; ISSN: 0936-5214

PUBLISHER: Georg Thieme Verlag

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 134:340407

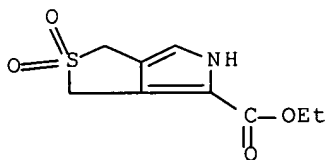
AB Under thermal extrusion of SO<sub>2</sub>, Et 3,5-dihydro-4,4-dioxo-1H-thieno[3,4-c]pyrrole-2-carboxylates cycloadded to C<sub>60</sub> to give [60]fullerocyclohexane-fused pyrrole-2-carboxylates. While the reaction with N-substituted pyrroles afforded relatively soluble cycloadducts, the isolated solid product from the N-unsubstituted pyrrole was not readily soluble. Nevertheless, its structure was confirmed by Boc-protection of the primarily formed cycloadduct. The Boc-protected product could not be obtained directly, yielding the N-unprotected product instead.

IT 190449-12-8 337515-79-4 337515-80-7  
337515-81-8

RL: RCT (Reactant); RACT (Reactant or reagent)  
(cycloaddn. reaction of [60]fullerene with 3,5-dihydro-4,4-dioxo-1H-thieno[3,4-c]pyrrole-2-carboxylates)

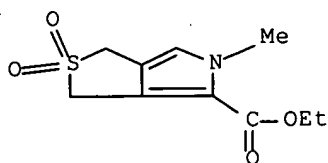
RN 190449-12-8 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 3,5-dihydro-, ethyl ester, 2,2-dioxide (9CI) (CA INDEX NAME)



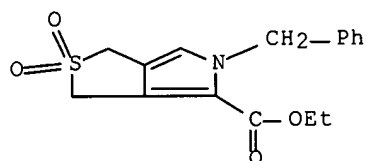
RN 337515-79-4 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 3,5-dihydro-5-methyl-, ethyl ester, 2,2-dioxide (9CI) (CA INDEX NAME)



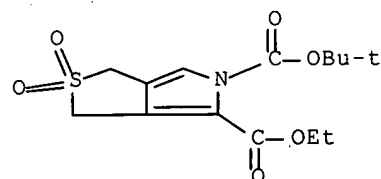
RN 337515-80-7 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 3,5-dihydro-5-(phenylmethyl)-, ethyl ester, 2,2-dioxide (9CI) (CA INDEX NAME)



RN 337515-81-8 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4,5(3H)-dicarboxylic acid, 5-(1,1-dimethylethyl)-, 4-ethyl ester, 2,2-dioxide (9CI) (CA INDEX NAME)



# RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Ando, K	1995	51	129	J Org Chem	HCAPLUS
Guhr, K	1994	116	5997	J Am Chem Soc	HCAPLUS
Hirsch, A	1995		895	Synthesis	HCAPLUS
McEsen, C	1992	114	4412	J Am Chem Soc	
Ohno, M	1998		1812	Synthesis	HCAPLUS
Ohno, M	1997	53	9075	Tetrahedron	HCAPLUS
Sliwa, W	1997	5	1133	Fullerene Sci Tech	HCAPLUS
Torres-Garcia, G	1997	62	2752	J Org Chem	HCAPLUS
Tso, H	1996	37	4189	Tetrahedron Lett	HCAPLUS
Tsuda, M	1993		1296	J Chem Soc, Chem Com	HCAPLUS
Vicente, M	1997	38	3639	Tetrahedron Lett	HCAPLUS

L32 ANSWER 16 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2000:607698 HCAPLUS Full-text  
 DOCUMENT NUMBER: 133:328797

TITLE: Loading a Porphyrin with Fullerene Units  
 AUTHOR(S): Rieder, Alexander; Kraeutler, Bernhard  
 CORPORATE SOURCE: Institute of Organic Chemistry, University of  
 Innsbruck, Innsbruck, A-6020, Austria  
 SOURCE: Journal of the American Chemical Society (2000),  
 122(37), 9050-9051  
 CODEN: JACSAT; ISSN: 0002-7863  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

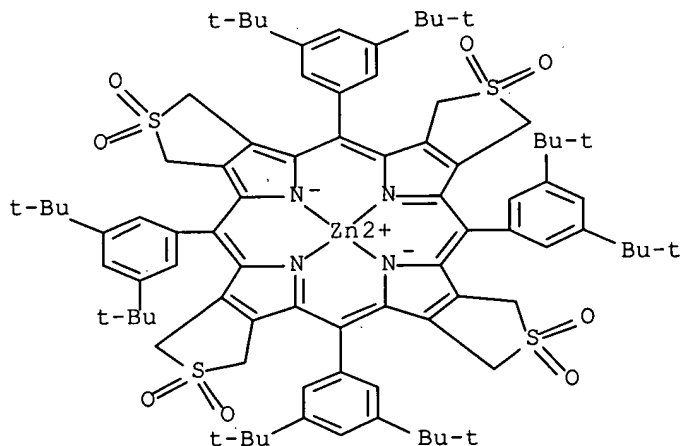
AB One to four C60 fullerene units can be added sequentially to {tetrakis(3,5-di-  
 tert-butylphenyl)tetrakisulfonoporphyrinato}zinc by heating in 1,2-  
 dichlorobenzene. The complexes were characterized based upon FAB mass spectra  
 as well as UV-visible and <sup>1</sup>H NMR spectra.

IT 267237-69-4

RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reactant for stepwise preparation of zinc fullerenoporphyrinate complexes  
 with 1-4 fullerene moieties)

RN 267237-69-4 HCAPLUS

CN Zinc, [[5,11,17,23-tetrakis[3,5-bis(1,1-dimethylethyl)phenyl]-  
 7,9,13,15,19,21-hexahydro-1H,3H,25H,27H-tetrathieno[3,4-b:3',4'-g:3'',4''-  
 1:3''',4'''-q]porphine-κN25,κN26,κN27,κN28]  
 2,2,8,8,14,14,20,20-octaoxidato(2-)]-, (SP-4-1)- (9CI) (CA INDEX NAME)



# RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Battersby, A	1994	264	1551	Science	HCAPLUS
Bourgeois, J	1998	81	1835	Helv Chim Acta	HCAPLUS
Chen, C	1996	5	91	Comprehensive Supram	HCAPLUS
Crossley, M	1991		1569	J Chem Soc, Chem Com	HCAPLUS
Diederich, F	1999	28	263	Chem Soc Rev	HCAPLUS
Dietel, E	1998		1357	J Chem Soc, Perkin T	HCAPLUS
Dolphin, D	1978			The Porphyrins	
Drovetskaya, T	1995	36	7971	Tetrahedron Lett	HCAPLUS
Durr, K	1997	130	1375	Chem Ber/Recl	HCAPLUS
Gunter, M	1999		803	J Chem Soc, Chem Com	HCAPLUS
Gust, D	1993	26	198	Acc Chem Res	HCAPLUS
Huber, R	1989	28	848	Angew Chem, Int Ed E	

Imahori, H	1995	265	Chem Lett	HCAPLUS
Jentzen, W	1995  117	11085	J Am Chem Soc	HCAPLUS
Krautler, B	1987  41	277	Chimia	
Krautler, B	1993  76	1626	Helv Chim Acta	
Krautler, B	2000  83	583	Helv Chim Acta	
Krautler, B	1996  52	5033	Tetrahedron	
Lehn, J	1995		Supramolecular Chemi	
Lidell, P	1994  60	537	Photochem Photobiol	
Medford, C	1992  114	9859	J Am Chem Soc	
Montforts, F	2000  39	599	Angew Chem, Int Ed	HCAPLUS
Nierengarten, J	1998  37	1934	Angew Chem Int Ed	HCAPLUS
Ranasinghe, M	1996  37	4797	Tetrahedron Lett	HCAPLUS
Rubin, Y	1993  115	344	J Am Chem Soc	HCAPLUS
Scheer, H	1991		Chlorophylls	
Schuster, D	1999  121	11599	J Am Chem Soc	HCAPLUS
Segura, J	2000  29	13	Chem Soc Rev	HCAPLUS
Sessler, J	1996  4	311	Comprehensive Supram	HCAPLUS
Shelnutt, J	1998  27	31	Chem Soc Rev	HCAPLUS
Smith, K	1975		Porphyrins and Metal	
Waditschatka, R	1985	1604	J Chem Soc, Chem Com	HCAPLUS
Wasielewsky, M	1992  92	435	Chem Rev	

L32 ANSWER 17 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:748490 HCAPLUS Full-text

DOCUMENT NUMBER: 134:65448

TITLE: Synthesis of sulfolenobilins and their cyclization directed to chlorinatozinc-fullerene dyads

AUTHOR(S): Kutzki, Olaf; Walter, Andreas; Montforts, Franz-Peter

CORPORATE SOURCE: Institut fur Organische Chemie des FB 2 der Universitat Bremen, Bremen, D-28359, Germany

SOURCE: Helvetica Chimica Acta (2000), 83(9), 2231-2245

CODEN: HCACAV; ISSN: 0018-019X

PUBLISHER: Verlag Helvetica Chimica Acta

DOCUMENT TYPE: Journal

LANGUAGE: German

OTHER SOURCE(S): CASREACT 134:65448

AB A novel chlorinatozinc-fullerene dyad was synthesized to model the photosynthetic reaction center. The synthetic key step for the formation of the dyad is an unusual 1-pot reaction of the (sulfolenobilinato)-Ni with concomitant generation of the chlorin macrocycle and linkage to the [5,6]fullerene-C60-Ih. This 1-pot reaction is a complex cascade of single reaction steps with a total yield of 32% and an average yield of 83% for the individual steps. The chlorinatozinc-fullerene dyad is so far one of 3 examples that contain chlorin moieties, the chromophores in naturally occurring photosynthetic systems.

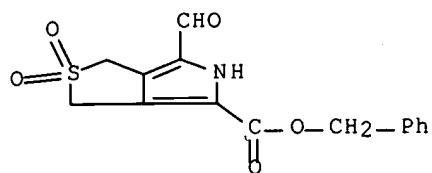
IT **262611-68-7P 313252-68-5P**

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and reactant for synthesis of sulfolenobilins and their cyclization to chlorinatozinc-fullerene dyads to model the photosynthetic reaction center)

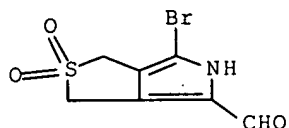
RN 262611-68-7 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 6-formyl-3,5-dihydro-, phenylmethyl ester, 2,2-dioxide (9CI) (CA INDEX NAME)



RN 313252-68-5 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxaldehyde, 6-bromo-3,5-dihydro-,  
2,2-dioxide (9CI) (CA INDEX NAME)

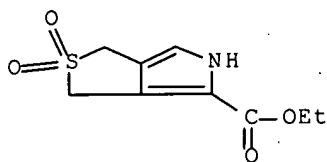


IT 190449-12-8

RL: RCT (Reactant); RACT (Reactant or reagent)  
(reactant for synthesis of chlorinatozinc-fullerene dyads to model the  
photosynthetic reaction center)

RN 190449-12-8 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 3,5-dihydro-, ethyl ester,  
2,2-dioxide (9CI) (CA INDEX NAME)

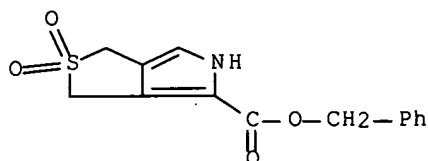


IT 218628-86-5

RL: RCT (Reactant); RACT (Reactant or reagent)  
(reactant for synthesis of sulfolenobilins and their cyclization to  
chlorinatozinc-fullerene dyads to model the photosynthetic reaction  
center)

RN 218628-86-5 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 3,5-dihydro-, phenylmethyl  
ester, 2,2-dioxide (9CI) (CA INDEX NAME)

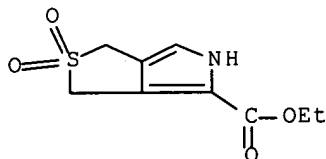


IT 190449-12-8DP, reaction products with fullerene-60  
313252-73-2P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(synthesis of sulfolenobilins and their cyclization to  
chlorinatozinc-fullerene dyads to model the photosynthetic reaction  
center)

RN 190449-12-8 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 3,5-dihydro-, ethyl ester,  
2,2-dioxide (9CI) (CA INDEX NAME)



RN 313252-73-2 HCAPLUS

CN Zinc, [(1,3,7,8-tetrahydro-7,7,12,13,17,18-hexamethyl-22H,24H-thieno[3,4-  
b]porphine-κN22,κN23,κN24,κN25)  
2,2-dioxidato(2-)]-, (SP-4-2)- (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

# RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Abel, Y	1998	81	1978	Helv Chim Acta	HCAPLUS
Anon	2000	1-10		The Porphyrin Handbo	
Borovkov, V	1992	65	1533	Bull Chem Soc	HCAPLUS
Bourgeois, J	1998	81	1835	Helv Chim Acta	HCAPLUS
Cheng, P	1999	89		J Chem Soc, Chem Com	
Deisenhofer, J	1989	101	872	Angew Chem	HCAPLUS
Deisenhofer, J	1989	28	829	Angew Chem, Int Ed	
Deisenhofer, J	1993			The Photosynthetic R	
Diederich, F	1999	32	537	Acc Chem Res	HCAPLUS
Dietel, E	1998		1981	Chem Commun	HCAPLUS
Drovetskaya, T	1995	36	7971	Tetrahedron Lett	HCAPLUS
Eschenmoser, A	1977	196	1410	Science	HCAPLUS
Gunter, M	1999		803	Chem Commun	HCAPLUS
Gust, D	1993	26	198	Acc Chem Res	HCAPLUS
Gust, D	1997	23	621	Res Chem Intermed	HCAPLUS
Gust, D	1991	159	102	Topics in Current Ch	
Haake, G	1994	35	19703	Tetrahedron Lett	HCAPLUS
Helaja, J	1999		12403	J Chem Soc	

Hirsch, A	1994			The Chemistry of the	
Huber, R	1989	101	849	Angew Chem	HCAPLUS
Huber, R	1989	28	848	Angew Chem, Int Ed	
Imahori, H	1997	9	537	Adv Mater	HCAPLUS
Imahori, H	1996	263	545	Chem Phys Lett	HCAPLUS
Imahori, H	1999		2445	Eur J Org Chem	HCAPLUS
Krautler, B	1987	41	277	Chimia	
Krautler, B	2000	83	583	Helv Chim Acta	
Krautler, B	2000			J Am Chem Soc	
Kuciauskas, D	1996	100	15926	J Phys Chem	HCAPLUS
Kurreck, H	1995	107	929	Angew Chem	
Kurreck, H	1995	34	849	Angew Chem, Int Ed	HCAPLUS
Linssen, T	1995		103	J Chem Soc, Chem Com	HCAPLUS
Marcus, R	1993	105	1161	Angew Chem	HCAPLUS
Marcus, R	1993	32	1111	Angew Chem, Int Ed	
Martin, N	1998	98	2527	Chem Rev	HCAPLUS
Maruyama, K	1989	5	833	Chem Lett	
Montforts, F	1979	91	752	Angew Chem	HCAPLUS
Montforts, F	1981	93	795	Angew Chem	HCAPLUS
Montforts, F	1982	94	208	Angew Chem	HCAPLUS
Montforts, F	1982		499	Angew Chem	
Montforts, F	2000	112	612	Angew Chem	
Montforts, F	2000	39	599	Angew Chem Int Ed	HCAPLUS
Montforts, F	1979	18	675	Angew Chem, Int Ed	
Montforts, F	1981	20	778	Angew Chem, Int Ed	
Montforts, F	1982	21	214	Angew Chem, Int Ed	
Montforts, F	1994	94	327	Chem Rev	HCAPLUS
Montforts, F	1987	70	402	Helv Chim Acta	HCAPLUS
Montforts, F	1985		1228	Liebig's Ann Chem	HCAPLUS
Montforts, F	1998	10	1	Progress in Heterocy	HCAPLUS
Naab, P	1980	92	143	Angew Chem	HCAPLUS
Naab, P	1980	19	143	Angew Chem, Int Ed	
Ofner, S	1981	64	1431	Helv Chim Acta	HCAPLUS
Sakata, Y	1997	69	1951	Pure Appl Chem	HCAPLUS
Scheer, H	1991			Chlorophylls	
Tauber, A	1997	51	88	Acta Chem Scand	HCAPLUS
Tauber, A	1994	50	4723	Tetrahedron	HCAPLUS
Tkachenko, N	1999	121	9378	J Am Chem Soc	HCAPLUS
Tome, A	1998	54	11141	Tetrahedron	HCAPLUS
Vicente, M	1997	38	3639	Tetrahedron Lett	HCAPLUS
Wasielewski, M	1992	92	435	Chem Rev	HCAPLUS
Zheng, G	1999		2469	Chem Commun	HCAPLUS

L32 ANSWER 18 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:791082 HCAPLUS Full-text

DOCUMENT NUMBER: 134:100851

TITLE: Diels-alder reaction of tribenzo[b,g,l]thiopheno[3,4-q]porphyrazine as a new path for porphyrazine core modification

AUTHOR(S): Nemykin, Victor N.; Polshina, Ann E.; Kobayashi, Nagao

CORPORATE SOURCE: Department of Chemistry, Graduate School of Science, Tohoku University, Sendai, 980-8578, Japan

SOURCE: Chemistry Letters (2000), (11), 1236-1237

CODEN: CMLTAG; ISSN: 0366-7022

PUBLISHER: Chemical Society of Japan

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 134:100851

AB Diels-Alder reaction between tribenzo[b,g,l]thiopheno[3,4-q]porphyrazine and di-Me acetylenedicarboxylate at ca. 200 °C produced a substituted



tribenzo[b,g,l]porphyrazine and 3:1 unsym. substituted phthalocyanine, which were characterized by UV-VIS, MCD, NMR, and mass spectroscopies.

IT 319925-05-8P

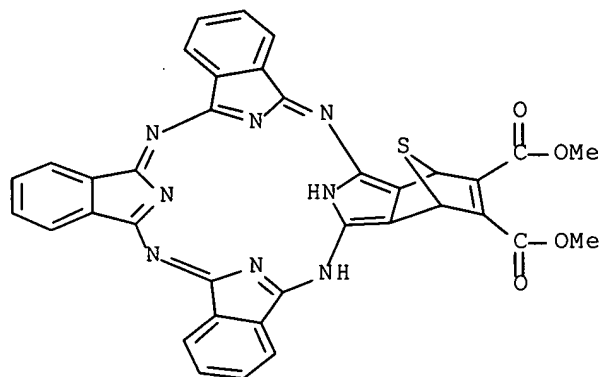
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation, electronic absorption and magnetic CD of core modified porphyrazines via Diels-Alder reaction of tribenzothiophenoporphyrazine with di-Me acetylenedicarboxylate)

RN 319925-05-8 HCAPLUS

CN 1,4-Epithio-29H,31H-tetrabenzo[b,g,l,q]porphyrazine-2,3-dicarboxylic acid, C,C,C-tris(1,1-dimethylethyl)-1,4-dihydro-, dimethyl ester (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A

3 ( D1-Bu-t )

# RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
=====	=====	=====	=====	=====	=====
Anon	1989-	1-4		Phthalocyanines: Pro	
Anon	1971	5		The Chemistry of Syn	
Chen, M	1989		1071	J Chem Soc Perkin Tr	HCAPLUS
Cook, M	1997	7	5	J Mater Chem	HCAPLUS
Cook, M	2000	56	4085	Tetrahedron	HCAPLUS
Hanack, M	2000		303	Eur J Org Chem	HCAPLUS
Hauschel, B	1999		693	Eur J Inorg Chem	HCAPLUS
Hedayatulakh, M	1983	296	621	CR Acad Sci Ser 2	
Kobayashi, N	1990	112	9640	J Am Chem Soc	HCAPLUS
Kobayashi, N	1999	121	9096	J Am Chem Soc	HCAPLUS
Stihler, P	1997	130	801	Chem Ber	HCAPLUS
Stillman, M	1989	11		Phthalocyanines: Pro	

L32 ANSWER 19 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2000:853465 HCAPLUS Full-text  
 DOCUMENT NUMBER: 134:175573

TITLE: Antifungal amides from *Piper hispidum* and *Piper tuberculatum*

AUTHOR(S): Navickiene, H. M. D.; Alecio, A. C.; Kato, M. J.; Bolzani, V. S.; Young, M. C. M.; Cavalheiro, A. J.; Furlan, M.

CORPORATE SOURCE: Instituto de Quimica, Universidade Estadual Paulista, Araraquara-SP, 14800-900, Brazil

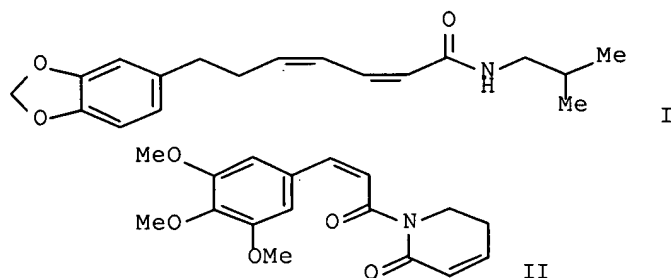
SOURCE: Phytochemistry (2000), 55(6), 621-626  
CODEN: PYTCAS; ISSN: 0031-9422

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

GI



AB *Piper hispidum* and *Piper tuberculatum* accumulate amides bearing iso-Bu, **pyrrolidine**, dihydropyridone and piperidine moieties. The isolation and characterization of several representatives, including two hitherto unreported amides (I and II), were performed by chromatog. techniques and by anal. of spectroscopic data. The antifungal activity of each amide was determined by direct bioautog. against *Cladosporium sphaerospermum*.

## RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Alecio, A	1998	61	637	Journal of Natural P	HCAPLUS
Araujo-Junior, J	1997	44	559	Phytochemistry	
Bernard, C	1995	21	801	Journal of Chemical	HCAPLUS
Duh, C	1990	29	2689	Phytochemistry	HCAPLUS
Filho, R	1981	20	345	Phytochemistry	
Homans, A	1970	51	327	Journal of Chromatog	HCAPLUS
Kiuchi, F	1988	36	2452	Chemical Pharmaceuti	HCAPLUS
Maxwell, A	1991	54	1150	Journal of Natural P	HCAPLUS
Miyako, M	1989		387	ACS Symposium Series	
Parmar, V	1997	46	597	Phytochemistry	HCAPLUS
Rahalison, L	1994	60	41	Planta Medica	HCAPLUS
Rosario, S	1996	62	376	Planta Medica	HCAPLUS
Shah, S	1986	25	1997	Phytochemistry	HCAPLUS

L32 ANSWER 20 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

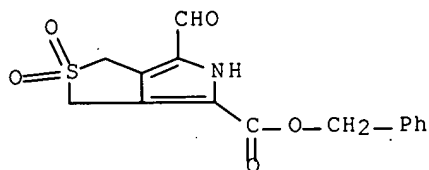
ACCESSION NUMBER: 2000:132427 HCAPLUS Full-text

DOCUMENT NUMBER: 133:98607

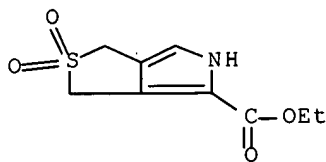
TITLE: Simple synthesis of a chlorin-fullerene dyad with a novel ring-closure reaction

AUTHOR(S): Montforts, Franz-Peter; Kutzki, Olaf

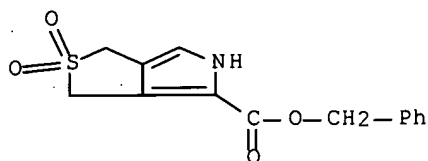
CORPORATE SOURCE: Institut für Organische Chemie der Universität FB2  
 Biologie/Chemie, Bremen, 28334, Germany  
 SOURCE: Angewandte Chemie, International Edition (2000),  
 39(3), 599-601  
 CODEN: ACIEF5; ISSN: 1433-7851  
 PUBLISHER: Wiley-VCH Verlag GmbH  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB The synthesis of a dyad that contains fullerene C60 bound to chlorin by two  
 methylene bridges by a one-pot reaction is reported. Fluorescence spectra  
 show that while the bare zinc chlorin complex exhibits luminescence, the  
 luminescence is quenched by the fullerene derivatized zinc chlorin.  
 IT **262611-68-7P**  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)  
 (preparation and reactant for preparation of zinc chlorin-fullerene dyad)  
 RN 262611-68-7 HCAPLUS  
 CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 6-formyl-3,5-dihydro-,  
 phenylmethyl ester, 2,2-dioxide (9CI) (CA INDEX NAME)



IT **190449-12-8**  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reactant for preparation of fullerene Diels-Alder adduct)  
 RN 190449-12-8 HCAPLUS  
 CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 3,5-dihydro-, ethyl ester,  
 2,2-dioxide (9CI) (CA INDEX NAME)



IT **218628-86-5**  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reactant for preparation of zinc chlorin-fullerene dyad)  
 RN 218628-86-5 HCAPLUS  
 CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 3,5-dihydro-, phenylmethyl  
 ester, 2,2-dioxide (9CI) (CA INDEX NAME)



## RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Abel, Y	1998	81	1978	Helv Chim Acta	HCAPLUS
Armaroli, N	1999		77	New J Chem	HCAPLUS
Cheng, P	1999		89	J Chem Soc Chem Comm	HCAPLUS
Deisenhofer, J	1993			The Photosynthetic R	
Diederich, F	1999	32	537	Acc Chem Res	HCAPLUS
Dietel, E	1998		1981	J Chem Soc Chem Comm	HCAPLUS
Drovetskaya, T	1995	36	7971	Tetrahedron Lett	HCAPLUS
Gust, D	1997	23	621	Res Chem Intermed	HCAPLUS
Gust, D	1991		103	Topics in Current Ch	HCAPLUS
Haake, G	1994	35	9703	Tetrahedron Lett	HCAPLUS
Helaja, J	1999		2403	J Chem Soc Perkin Tr	HCAPLUS
Hirsch, A	1994			The Chemistry of the	
Imahori, H	1997	9	537	Adv Mater	HCAPLUS
Kuciauskas, D	1996	100	15926	J Phys Chem	HCAPLUS
Kurreck, H	1995	107	929	Angew Chem	
Kurreck, H	1995	34	849	Angew Chem Int Ed En	HCAPLUS
Linssen, T	1995		103	J Chem Soc Chem Comm	HCAPLUS
Martin, N	1998	98	2527	Chem Rev	HCAPLUS
Montforts, F	1981	93	795	Angew Chem	HCAPLUS
Montforts, F	1982	94	208	Angew Chem	HCAPLUS
Montforts, F	1981	20	778	Angew Chem Int Ed En	
Montforts, F	1982	21	214	Angew Chem Int Ed En	
Montforts, F	1982		499	Angew Chem Suppl	
Montforts, F	1994	94	327	Chem Rev	HCAPLUS
Montforts, F	1987	70	402	Helv Chim Acta	HCAPLUS
Montforts, F	1985		1228	Liebigs Ann Chem	HCAPLUS
Montforts, F	1998	10	1	Progress in Heterocy	HCAPLUS
Tkachenko, N	1999	121	9378	J Am Chem Soc	HCAPLUS
Tome, A	1998	54	11141	Tetrahedron	HCAPLUS
Wasielewski, M	1992	92	435	Chem Rev	HCAPLUS

L32 ANSWER 21 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:213301 HCAPLUS Full-text

DOCUMENT NUMBER: 132:342346

TITLE: A symmetrical tetrasulfolenoporphyrin as reactive building block

AUTHOR(S): Krautler, Von Bernhard; Sheehan, Craig S.; Rieder, Alexander

CORPORATE SOURCE: Institut fur Organische Chemie, Universitat Innsbruck, Innsbruck, A-6020, Austria

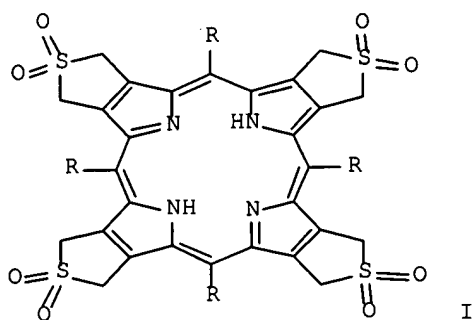
SOURCE: Helvetica Chimica Acta (2000), 83(3), 583-591  
CODEN: HCACAV; ISSN: 0018-019X

PUBLISHER: Verlag Helvetica Chimica Acta

DOCUMENT TYPE: Journal

LANGUAGE: German

GI



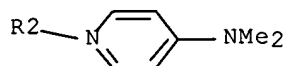
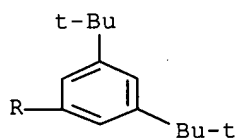
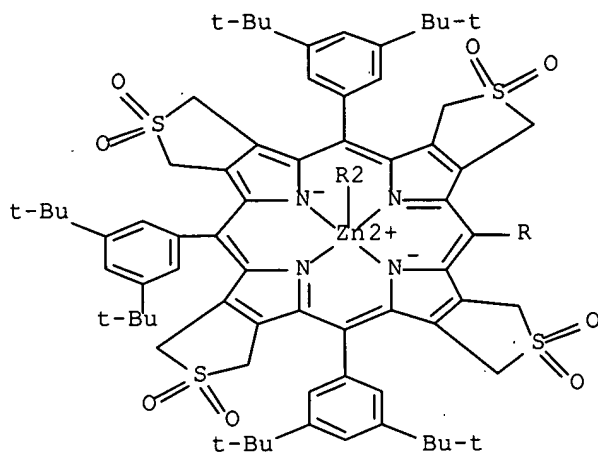
AB The efficient preparation of the sym. tetrasulfolenoporphyrin (I; R = 3,5-di-tert-butylphenyl) is reported, which shows good solubility in a variety of solvents. In I, 4 sulfone groups that sym. bridge the 8 methylene groups in  $\beta$ -position at the pyrrole rings provide 4 sulfolene (2,5-dihydrothiophene 1,1-dioxide) units which are prone to cleavage by thermally induced extrusion of SO<sub>2</sub>. I lends itself to specific and multiple refunctionalization by the replacement of the sulfone groups by other functionalities in SO<sub>2</sub> extrusion/cycloaddn. sequences. The predicted reactivity and the potential of ZnL (H<sub>2</sub>L = I) as a reactive porphyrin module is tested in exploratory expts. To this end, thermolysis of ZnL in dichlorobenzene solution (at 140°) and in the presence of [5,6]fullerene-C<sub>60</sub>-Ih gives the (fullereno-porphyrinato)zinc still having 3 sulfolene units and a diagonal (difullerenoporphyrinato)zinc that still has 2 sulfolene units, in 14 and in 43% yield, resp.

IT 267237-70-7P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and cycloaddn. reaction with fullerene C60)

RN 267237-70-7 HCAPLUS

CN Zinc, (N,N-dimethyl-4-pyridinamine-κN1)[[5,11,17,23-tetrakis[3,5-bis(1,1-dimethylethyl)phenyl]-7,9,13,15,19,21-hexahydro-1H,3H,25H,27H-tetrathieno[3,4-b:3',4'-g:3'',4''-l:3''',4'''-q]porphine-κN25,κN26,κN27,κN28] 2,2,8,8,14,14,20,20-octaoxidato(2-)]-, (SP-5-21)- (9CI) (CA INDEX NAME)

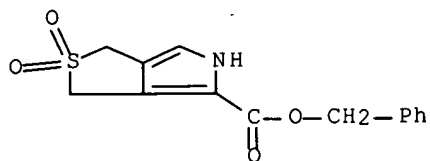


IT 218628-86-5

RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation and reactivity of a tetrasulfolenoporphyrin derivative)

RN 218628-86-5 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 3,5-dihydro-, phenylmethyl  
ester, 2,2-dioxide (9CI) (CA INDEX NAME)



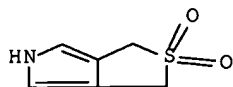
IT 144425-36-5P 267237-67-2P 267237-68-3P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(preparation and reactivity of a tetrasulfolenoporphyrin derivative)

RN 144425-36-5 HCAPLUS

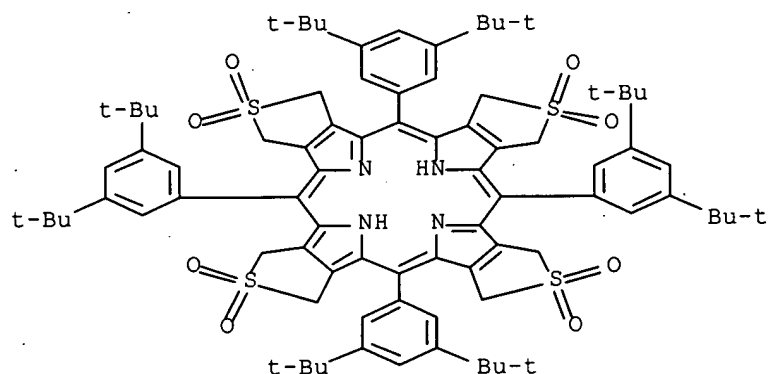
10/520,050

CN 1H-Thieno[3,4-c]pyrrole, 3,5-dihydro-, 2,2-dioxide (9CI) (CA INDEX NAME)



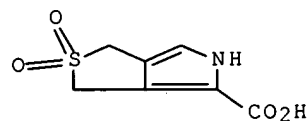
RN 267237-67-2 HCAPLUS

CN 1H,3H,25H,27H-Tetrathieno[3,4-b:3',4'-g:3'',4'''-l:3''',4''''-q]porphine, 5,11,17,23-tetrakis[3,5-bis(1,1-dimethylethyl)phenyl]-7,9,13,15,19,21-hexahydro-, 2,2,8,8,14,14,20,20-octaoxide (9CI) (CA INDEX NAME)



RN 267237-68-3 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 3,5-dihydro-, 2,2-dioxide (9CI) (CA INDEX NAME)

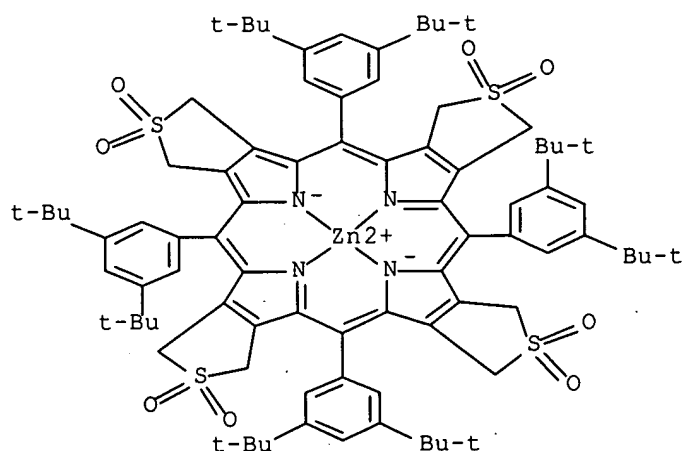


IT 267237-69-4P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation and reactivity of a tetrasulfolenoporphyrin derivative)

RN 267237-69-4 HCAPLUS

CN Zinc, [[5,11,17,23-tetrakis[3,5-bis(1,1-dimethylethyl)phenyl]-7,9,13,15,19,21-hexahydro-1H,3H,25H,27H-tetrathieno[3,4-b:3',4'-g:3'',4'''-l:3''',4''''-q]porphine-κN25,κN26,κN27,κN28] 2,2,8,8,14,14,20,20-octaoxidato(2-)]-, (SP-4-1)- (9CI) (CA INDEX NAME)



## RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Abel, Y	1998	81	1978	Helv Chim Acta	HCAPLUS
Ando, K	1995	51	129	Tetrahedron	HCAPLUS
Battersby, A	1994	264	1551	Science	HCAPLUS
Bourgeois, J	1998	81	1835	Helv Chim Acta	HCAPLUS
Chen, C	1996	5	91	Comprehensive Supram	HCAPLUS
Crossley, M	1991		1569	Chem Commun	HCAPLUS
Dietel, E	1998		1357	J Chem Soc, Perkin T	HCAPLUS
Dolphin, D	1978			The Porphyrins	
Drovetskaya, T	1995	36	7971	Tetrahedron Lett	HCAPLUS
Durr, K	1997	130	1375	Chem Ber/Recueil	HCAPLUS
Gunter, M	1999		803	Chem Commun	HCAPLUS
Gust, D	1993	26	198	Acc Chem Res	HCAPLUS
Huber, R	1989	101	849	Angew Chem	HCAPLUS
Huber, R	1989	28	848	Angew Chem, Int Ed	
Imahori, H	1995		265	Chem Lett	HCAPLUS
Isaacs, L	1993	76	1231	Helv Chim Acta	HCAPLUS
Krautler, B	1987	41	277	Chimia	
Krautler, B	1993	76	1626	Helv Chim Acta	
Kuciauskas, D	1999	121	8604	J Am Chem Soc	HCAPLUS
Lehn, J	1995			Supramolecular Chemi	
Lidell, P	1997	119	1400	J Am Chem Soc	
Lidell, P	1994	60	537	Photochem Photobiol	
Lindsey, J	1987	52	827	J Am Chem Soc	HCAPLUS
Linssen, T	1995		103	Chem Commun	HCAPLUS
Newman, M	1972	37	4468	J Org Chem	HCAPLUS
Nierengarten, J	1998	110	2037	Angew Chem	
Nierengarten, J	1998	37	1934	Angew Chem, Int Ed	HCAPLUS
Nierengarten, J	1998		1545	Chem Commun	HCAPLUS
Ranasinghe, M	1996	37	4797	Tetrahedron Lett	HCAPLUS
Rubin, Y	1993	115	344	J Am Chem Soc	HCAPLUS
Scheer, H	1991			Chlorophylls	
Sessler, J	1996	4	311	Comprehensive Supram	HCAPLUS
Smith, K	1975			Porphyrins and Metal	
Vicente, M	1997	38	3639	Tetrahedron Lett	HCAPLUS
Wasielewsky, M	1992	92	435	Chem Rev	
Whitlock, H	1969	91	7485	J Am Chem Soc	HCAPLUS



L32 ANSWER 22 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:88097 HCAPLUS Full-text

DOCUMENT NUMBER: 134:274966

TITLE: Synthesis and properties of novel porphine-fullerene dyads for the investigation of light induced energy and electron transfer

AUTHOR(S): Kutzki, Olaf; Wedel, Michael; Montforts, Franz-Peter; Smirnov, Sergei; Cosnier, Serge; Walter, Andreas

CORPORATE SOURCE: University of Bremen, FB 2 - Chemistry/Biology, Bremen, D-28334, Germany

SOURCE: Proceedings - Electrochemical Society (2000), 2000-10(Fullerenes 2000--Volume 8: Electrochemistry and Photochemistry), 172-181

CODEN: PESODO; ISSN: 0161-6374

PUBLISHER: Electrochemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 134:274966

AB A variety of dyads and more complex mol. arrangements of donor and acceptor subunits were designed to investigate light induced energy and electron transfer to mimic natural photosynthesis. Since the discovery and availability of the fullerenes, especially fullerene C60 was used as a subunit for the construction of mol. dyads which undergo light induced electron transfer from a porphinoid donor to the fullerene acceptor. A possible advantage of fullerenes over quinones, which were used as acceptors by nature and in the majority of artificial photosynthetic systems, is the ability of C60 to accept up to six electrons, and is the lower reorganization energy of C60 compared to quinones according to Marcus theory.

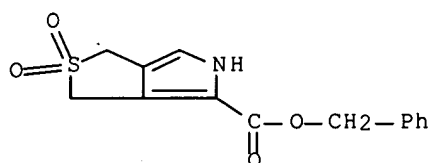
IT 218628-86-5P 262611-68-7P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(intermediate product in preparation of zinc porphyrin-fullerene dyad)

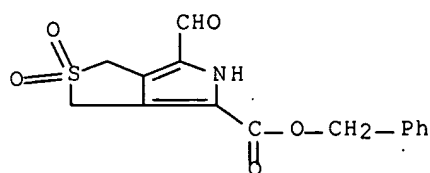
RN 218628-86-5 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 3,5-dihydro-, phenylmethyl ester, 2,2-dioxide (9CI) (CA INDEX NAME)



RN 262611-68-7 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 6-formyl-3,5-dihydro-, phenylmethyl ester, 2,2-dioxide (9CI) (CA INDEX NAME)



## RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Abel, Y	1998	81	1978	Helv Chim Acta	HCAPLUS
Appel, R	1975	87	863	Angew Chem	HCAPLUS
Appel, R	1975	14	801	Angew Chem Int Ed En	
Bingel, C	1993	126	1957	Chem Ber	HCAPLUS
Cosnier, S	1998	2	39	J Porphyrins Phthalo	HCAPLUS
Diederich, F	1999	32	537	Acc Chem Res	HCAPLUS
Dinello, R	1978	1A	294	The Porphyrins	
Gust, D	1993	26	198	Acc Chem Res	HCAPLUS
Gust, D	1997	23	621	Res Chem Intermed	HCAPLUS
Gust, D	1991	159	103	Topics in Current Ch	HCAPLUS
Haake, G	1994	35	9703	Tetrahedron Lett	HCAPLUS
Helaja, J	1999	1	2403	J Chem Soc Perkin Tr	
Hooz, J	1968	46	86	Can J Chem	HCAPLUS
Imahori, H	1997	9	537	Adv Mater	HCAPLUS
Imahori, H	1996	263	545	Chem Phys Lett	HCAPLUS
Imahori, H	1999		2445	Eur J Org Chem	HCAPLUS
Kurreck, H	1995	107	929	Angew Chem	
Kurreck, H	1995	34	849	Angew Chem Int Ed En	HCAPLUS
Marcus, R	1993	105	1161	Angew Chem	HCAPLUS
Marcus, R	1993	32	1111	Angew Chem Int Ed En	
Martin, N	1998	98	2527	Chem Rev	HCAPLUS
Monforts, F	1982	21	214	Angew Chem Int Ed En	
Montforts, F	1981	93	795	Angew Chem	HCAPLUS
Montforts, F	1982	94	208	Angew Chem	HCAPLUS
Montforts, F	2000	112	612	Angew Chem	
Montforts, F	1981	20	778	Angew Chem Int Ed En	
Montforts, F	2000	39	599	Angew Chem Int Ed En	HCAPLUS
Montforts, F	1982		499	Angew Chem Suppl	
Montforts, F	1987	70	402	Helv Chim Acta	HCAPLUS
Montforts, F	1985		1228	Liebigs Ann Chem	HCAPLUS
Montforts, F	1998	10		Progress in Heterocy	HCAPLUS
Nierengarten, J	1998	110	2037	Angew Chem	
Nierengarten, J	1998	37	1934	Angew Chem Int Ed En	HCAPLUS
Sakata, Y	1997	69	1951	Pure Appl Chem	HCAPLUS
Schumm, O	1928	178	1	Hoppe-Seyler's Z Phy	HCAPLUS
Tkachenko, N	1999	121	9378	J Am Chem Soc	HCAPLUS
Wagner, A	1989	30	557	Tetrahedron Lett	HCAPLUS
Wasielewski, M	1992	92	435	Chem Rev	HCAPLUS
Wedel, M	1999	40	7071	Tetrahedron Lett	HCAPLUS
Zehnder, B	1982			Thesis ETH Zurich	
Zheng, G	1999		2469	J Chem Soc Chem Comm	HCAPLUS

L32 ANSWER 23 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1999:273648 HCAPLUS Full-text

DOCUMENT NUMBER: 131:129799

TITLE: Porphodimethylidenes from porphyrin-fused  
3-sulfolenes-versatile porphyrin dienes for  
cycloadditions

AUTHOR(S): Gunter, Maxwell J.; Tang, Hesheng

CORPORATE SOURCE: Division of Chemistry, University of New England,  
Armidale, 2351, AustraliaSOURCE: Chemical Communications (Cambridge) (1999), (9),  
803-804

CODEN: CHCOFS; ISSN: 1359-7345

PUBLISHER:

Royal Society of Chemistry

DOCUMENT TYPE:

Journal

LANGUAGE:

English

OTHER SOURCE(S):

CASREACT 131:129799

AB A porphyrin with a  $\beta$ -fused 3-sulfolene on one of the pyrroles acts as a porphodimethylidene precursor which can be used for a variety of Diels-Alder cycloaddn. reactions.

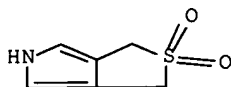
IT 144425-36-5P 218628-86-5P 234096-95-8P  
234096-96-9P 234437-54-8P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation of porphodimethylidenes from porphyrin-fused 3-sulfolenes for Diels-Alder cycloaddns.)

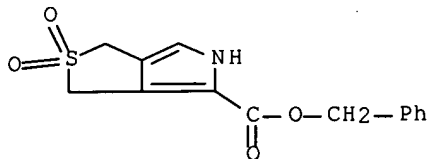
RN 144425-36-5 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 3,5-dihydro-, 2,2-dioxide (9CI) (CA INDEX NAME)



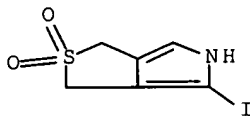
RN 218628-86-5 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 3,5-dihydro-, phenylmethyl ester, 2,2-dioxide (9CI) (CA INDEX NAME)



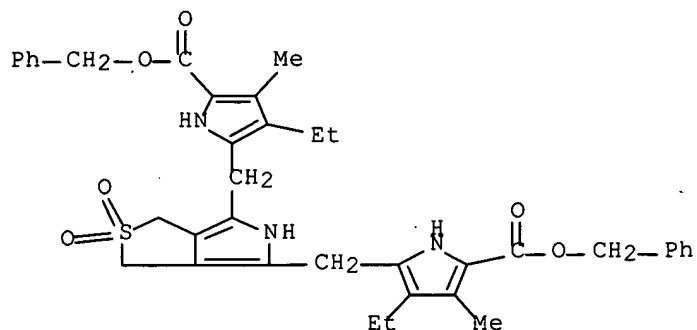
RN 234096-95-8 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 3,5-dihydro-4-iodo-, 2,2-dioxide (9CI) (CA INDEX NAME)

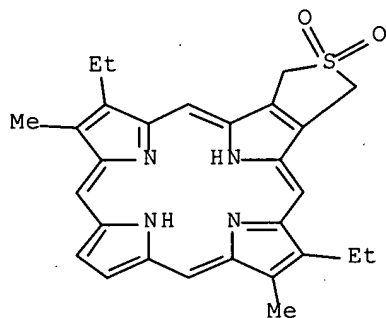


RN 234096-96-9 HCAPLUS

CN 1H-Pyrrole-2-carboxylic acid, 5,5'-[(3,5-dihydro-2,2-dioxido-1H-thieno[3,4-c]pyrrole-4,6-diyl)bis(methylene)]bis[4-ethyl-3-methyl-, bis(phenylmethyl) ester (9CI) (CA INDEX NAME)



RN 234437-54-8 HCAPLUS

CN 22H,24H-Thieno[3,4-b]porphine, 7,18-diethyl-1,3-dihydro-8,17-dimethyl-,  
2,2-dioxide (9CI) (CA INDEX NAME)

## RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Ando, K	1994		741	Synlett	HCAPLUS
Arnold, D	1994	47	969	Aust J Chem	HCAPLUS
Atkinson, E	1993	34	6147	Tetrahedron Lett	HCAPLUS
Atwood, J	1996	2, 4,		Comprehensive Supram	
Barton, D	1985		1098	J Chem Soc Chem Comm	HCAPLUS
Barton, D	1990	46	7587	Tetrahedron	HCAPLUS
Charlton, J	1987	43	2873	Tetrahedron (Tetrahe	HCAPLUS
Chen, H	1998	54	609	Tetrahedron	
Chou, S	1990	31	1035	Tetrahedron Lett	HCAPLUS
Chou, T	1993	8	65	Rev Heteroatom Chem	HCAPLUS
Crossley, M	1995		1921	J Chem Soc Chem Comm	HCAPLUS
Crossley, M	1995		2379	J Chem Soc Chem Comm	HCAPLUS
Crossley, M	1996		2675	J Chem Soc Perkin Tr	HCAPLUS
Crossley, M	1997	38	6751	Tetrahedron Lett	HCAPLUS
Faustino, M	1996	37	3569	Tetrahedron Lett	HCAPLUS
Gulyas, P	1997	62	3038	J Org Chem	HCAPLUS
Hopkins, P	1978	43	1208	J Org Chem	HCAPLUS
Ito, S	1998		1661	Chem Commun	HCAPLUS
Ito, S	1997		3161	J Chem Soc Perkin Tr	HCAPLUS

10/520,050

Jolliffe, K	1998  37	916	Angew Chem Int Ed	HCAPLUS
Kai, S	1996  37	5931	Tetrahedron Lett	HCAPLUS
Knapp, S	1998  37	2368	Angew Chem Int Ed	HCAPLUS
Lash, T	1996  2	1197	Chem Eur J	HCAPLUS
Liddell, P	1994  35	995	Tetrahedron Lett	HCAPLUS
Tome, A	1997	1199	Chem Commun	HCAPLUS
Vicente, M	1998	2355	Chem Commun	HCAPLUS
Vicente, M	1997  38	3639	Tetrahedron Lett	HCAPLUS
Warrener, R	1990		J Org Chem in press	
Warrener, R	1998	590	Synlett	HCAPLUS
Warrener, R	1998	593	Synlett	HCAPLUS
Zheng, G	1996	1119	Chem Lett	HCAPLUS

L32 ANSWER 24 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1998:674757 HCAPLUS Full-text  
 DOCUMENT NUMBER: 129:349077  
 TITLE: Ink-jet printing sheet  
 INVENTOR(S): Kaneko, Akira; Nakamura, Takayuki  
 PATENT ASSIGNEE(S): Mitsubishi Paper Mills, Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 10278415	A	19981020	JP 1997-89447	19970408
PRIORITY APPLN. INFO.:			JP 1997-89447	19970408
AB In the title printing sheet having an ink-receiving layer, the ink-receiving layer is formed by a gelatin-based graft copolymer. The ink-receiving layer may further contain a hydrophilic vinyl polymer, a fluorine surfactant, polymer fine particles or inorg. particles. The invention printing sheet can be used for high quality color printing with nice gloss.				

L32 ANSWER 25 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1998:680468 HCAPLUS Full-text  
 DOCUMENT NUMBER: 130:110096  
 TITLE: Cruciform porphyrin pentamers  
 AUTHOR(S): Vicente, M. Graca H.; Cancilla, Mark T.; Lebrilla, Carlito B.; Smith, Kevin M.  
 CORPORATE SOURCE: Department of Chemistry, University of California, Davis, CA, 95616, USA  
 SOURCE: Chemical Communications (Cambridge) (1998), (21), 2355-2356  
 CODEN: CHCOFS; ISSN: 1359-7345  
 PUBLISHER: Royal Society of Chemistry  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 130:110096  
 GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

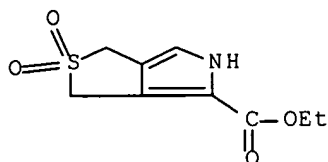
AB Cruciform porphyrin pentamers (I) are obtained in good yield by acid-catalyzed tetramerization of ZnII-pyrroloporphyrin (II), followed by oxidation with DDQ; pyrroloporphyrins are in turn obtained from the corresponding pyrrolochlorins by Diels-Alder type reactions of porphyrins involving thermal extrusion of sulfur dioxide from a pyrrole-fused 3-sulfolene.

IT 190449-12-8

RL: RCT (Reactant); RACT (Reactant or reagent)  
(synthesis of cruciform porphyrin pentamers)

RN 190449-12-8 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 3,5-dihydro-, ethyl ester,  
2,2-dioxide (9CI) (CA INDEX NAME)



# RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Clement, T	1998	37	1150	Inorg Chem	HCAPLUS
Crossley, M	1991		1569	J Chem Soc Chem Comm	HCAPLUS
Crossley, M	1995		1921	J Chem Soc Chem Comm	HCAPLUS
Crossley, M	1995		2379	J Chem Soc Chem Comm	HCAPLUS
Crossley, M	1997	38	6751	Tetrahedron Lett	HCAPLUS
Green, M	1997	3	439	Eur J Mass Spectrom	HCAPLUS
Gros, C	1997	1	201	J Porphyrins Phthaloc	HCAPLUS
Jaquinod, L	1996	35	1840	Angew Chem Int Ed En	HCAPLUS
Jaquinod, L	1996		1475	Chem Commun	
Jaquinod, L	1998		1261	Chem Commun	HCAPLUS
Khoury, R	1997		1057	Chem Commun	HCAPLUS
Norsten, T	1998		1257	Chem Commun	HCAPLUS
Ono, N	1990	46	7483	Tetrahedron	HCAPLUS
Osuka, A	1997	36	135	Angew Chem Int Ed En	HCAPLUS
Reek, N	1997	36	361	Angew Chem Int Ed En	
Tome, A	1997		1199	Chem Commun	HCAPLUS
Vicente, M	1997	38	3639	Tetrahedron Lett	HCAPLUS
Warrener, R	1998		593	Synlett	HCAPLUS
Zheng, G	1997	38	2409	Tetrahedron Lett	HCAPLUS

L32 ANSWER 26 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1998:756298 HCAPLUS Full-text

DOCUMENT NUMBER: 130:81364

TITLE: A simple and flexible synthesis of pyrroles from  
 $\alpha,\beta$ -unsaturated sulfones

AUTHOR(S): Abel, Yvonne; Haake, Elmar; Haake, Gerold; Schmidt,  
Wolfgang; Struve, Daria; Walter, Andreas; Montforts,  
Franz-Peter

CORPORATE SOURCE: Institut Organische Chemie, FB 2, Universitaet Bremen,  
Bremen, D-28359, Germany

SOURCE: Helvetica Chimica Acta (1998), 81(11), 1978-1996  
CODEN: HCACAV; ISSN: 0018-019X

PUBLISHER: Verlag Helvetica Chimica Acta AG  
 DOCUMENT TYPE: Journal  
 LANGUAGE: German  
 OTHER SOURCE(S): CASREACT 130:81364

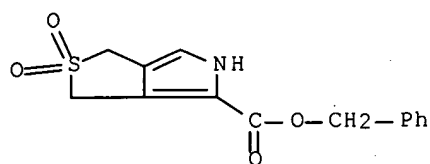
AB The addition of alkyl isocyanoacetates and isocyanoacetonitrile to  $\alpha,\beta$ -unsatd. sulfones affords a convenient and broad access to pyrroles with unusual substitution patterns. The  $\alpha,\beta$ -unsatd. sulfones required as starting materials are easily obtained from olefins.

IT 218628-86-5P

RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of pyrroles from  $\alpha,\beta$ -unsatd. sulfones)

RN 218628-86-5 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 3,5-dihydro-, phenylmethyl ester, 2,2-dioxide (9CI) (CA INDEX NAME)



# RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Abdel Hady, A				Dissertation Universit	
Abel, Y	1997	38	1745	Tetrahedron Lett	HCAPLUS
Ando, K	1994	9	741	Synlett	
Anon	1980	19	133	Angew Chem Int Ed En	
Anon	1995	34	914	Angew Chem Int Ed En	
Appel, R	1975	87	863	Angew Chem	HCAPLUS
Appel, R	1975	14	801	Angew Chem Int Ed En	
Arnold, D	1994	35	969	Aust J Chem	
Barkingia, K	1988	110	7566	J Am Chem Soc	
Barkingia, K	1990	112	8851	J Am Chem Soc	
Barton, D	1985		1098	J Chem Soc Chem Comm	HCAPLUS
Barton, D	1990	46	7587	Tetrahedron	HCAPLUS
Burns, D	1995	25	379	Synth Commun	HCAPLUS
Buschmann, J	1995	107	988	Angew Chem	
Chou, S	1990	35	1035	Tetrahedron Lett	
Dolphin, D	1997	97	2267	Chem Rev	
Eschenmoser, A	1988	100	5	Angew Chem	HCAPLUS
Eschenmoser, A	1988	27	5	Angew Chem Int Ed En	
Falk, H	1989			The Chemistry of Lin	
Gossauer, A	1974			Die Chemie der Pyrro	
Gust, D	1989	45	4867	Tetrahedron	HCAPLUS
Haake, G	1994	35	9703	Tetrahedron Lett	HCAPLUS
Helmchen, G	1989	61	409	Pure Appl Chem	HCAPLUS
Hopkins, P	1978	43	1209	J Org Chem	
Hoppe, D	1974	86	878	Angew Chem	HCAPLUS
Hoppe, D	1974	13	789	Angew Chem Int Ed En	
Houwing, H	1976	2	143	Tetrahedron Lett	
Ito, S	1997		3161	J Chem Soc Perkin Tr	HCAPLUS
Jentzen, W	1995	117	11805	J Am Chem Soc	

Jones, A	1977			The Chemistry of Pyr	
Liotta, D	1981	46	2605	J Org Chem	HCAPLUS
Magnus, P	1984	25	1421	Tetrahedron Lett	
Montforts, F	1994	94	327	Chem Rev	HCAPLUS
Montforts, F	1998	E9d	577	Houben-Weyl Methods	
Montforts, F	1998	10		Progress in Heterocy	HCAPLUS
Muller, H	1968	90	2075	J Am Chem Soc	
Nicolaou, K	1979	101	3884	J Am Chem Soc	HCAPLUS
Scarborough, R	1977	50	4361	Tetrahedron Lett	
Schollkopf, U	1977	89	351	Angew Chem	
Schollkopf, U	1977	16	339	Angew Chem Int Ed En	
Schmidt, W	1997		903	Synlett	
Seitz, U	1986		686	Synthesis	HCAPLUS
Sessler, J	1997			Expanded Contracted	
Simpkins, N	1993			Sulfones in Organic	
Trost, B	1981	22	1287	Tetrahedron Lett	HCAPLUS
van Leusen, A	1972	52	5337	Tetrahedron Lett	
van Leusen, A	1975	40	3487	Tetrahedron Lett	
Vicente, M	1997	38	3639	Tetrahedron Lett	HCAPLUS
Wilson, S	1980	10	339	Synth Commun	HCAPLUS
Wissman, H	1980	92	129	Angew Chem	

L32 ANSWER 27 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1997:349359 HCAPLUS Full-text

DOCUMENT NUMBER: 127:17531

TITLE: Synthesis and cycloaddition reactions of pyrrole-fused 3-sulfolenes: a new versatile route to tetrabenzoporphyrins

AUTHOR(S): Vicente, Maria G. H.; Tome, Augusto C.; Walter, Andreas; Cavaleiro, Jose A. S.

CORPORATE SOURCE: Department of Chemistry, University of Aveiro, Aveiro, 3810, Port.

SOURCE: Tetrahedron Letters (1997), 38(20), 3639-3642  
CODEN: TELEAY; ISSN: 0040-4039

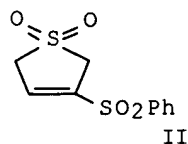
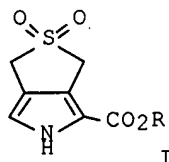
PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 127:17531

GI



AB Pyrrole-fused 3-sulfolenes I (R = Et, CMe<sub>3</sub>) were prepared from the corresponding  $\alpha,\beta$ -unsatd. sulfone II. These pyrroles undergo thermal extrusion of sulfur dioxide to produce highly reactive o-quinodimethanes which can be trapped in Diels-Alder reactions. The resulting pyrroles are important starting reagents in porphyrin synthesis.

IT 190449-12-8P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT

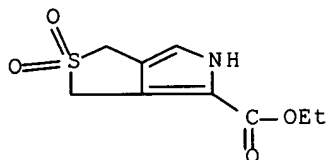


(Reactant or reagent)

(preparation of tetrabenzoporphyrins via cycloaddn. of pyrrole-fused sulfolenes)

RN 190449-12-8 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 3,5-dihydro-, ethyl ester, 2,2-dioxide (9CI) (CA INDEX NAME)



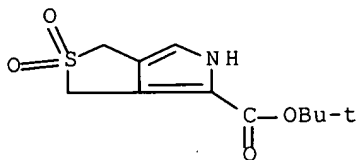
IT 190449-32-2P

RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation of tetrabenzoporphyrins via cycloaddn. of pyrrole-fused sulfolenes)

RN 190449-32-2 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-4-carboxylic acid, 3,5-dihydro-, 1,1-dimethylethyl ester, 2,2-dioxide (9CI) (CA INDEX NAME)



## RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Ando, K	1994	37	1417	Heterocycles	HCAPLUS
Ando, K	1992		1100	J Chem Soc, Chem Com	HCAPLUS
Ando, K	1994		741	Synlett	HCAPLUS
Ando, K	1995	51	129	Tetrahedron	HCAPLUS
Arnold, D	1994	47	969	Aust J Chem	HCAPLUS
Barton, D	1985		1098	J Chem Soc, Chem Com	HCAPLUS
Barton, D	1990	46	7587	Tetrahedron	HCAPLUS
Charlton, J	1987	43	2873	Tetrahedron	HCAPLUS
Chen, P	1996	100	17507	J Phys Chem	HCAPLUS
Chou, S	1990	31	1035	Tetrahedron Lett	HCAPLUS
Chou, T	1993	8	65	Reviews on Heteroato	HCAPLUS
Chung, W	1995		2537	J Chem Soc, Chem Com	HCAPLUS
Edwards, L	1976	98	7638	J Am Chem Soc	HCAPLUS
Haake, G	1994	35	9703	Tetrahedron Lett	HCAPLUS
Hopkins, P	1978	43	1208	J Org Chem	HCAPLUS
Koehorst, R	1981		1005	J Chem Soc, Perkin T	HCAPLUS
Lash, T	1995	34	683	Angew Chem Int Ed En	HCAPLUS
Martin, N	1991	23	1237	Organic Prep and Pro	HCAPLUS

Remy, D	1983  24	1451	Tetrahedron Lett	HCAPLUS
Tang, J	1994  59	7793	J Org Chem	HCAPLUS
Tome, A	1996	531	Synlett	HCAPLUS
Tome, A	1996  52	1735	Tetrahedron	HCAPLUS
Vancott, T	1993  97	7417	J Phys Chem	HCAPLUS
Vinogradov, S	1995	103	J Chem Soc Perkin Tr	HCAPLUS
Vogler, A	1978  17	760	Angew Chem Int Ed Enl	
Wolford, S	1995  24	52	Fundam Appl Toxicol	HCAPLUS

L32 ANSWER 28 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1998:190795 HCAPLUS Full-text

DOCUMENT NUMBER: 128:270553

TITLE: Synthesis of 4-substituted 3,5-dihydro-1H-thieno[3,4-

c]pyrrole 2,2-dioxides and their Diels-Alder reactions

AUTHOR(S): Suzuki, Takayoshi; Ohyabu, Hiroaki; Takayama, Hiroaki

CORPORATE SOURCE: Fac. Pharmaceutical Sci., Teikyo Univ., Sagamiko,  
Kanagawa, 199-01, Japan

SOURCE: Heterocycles (1997), 46, 199-202

CODEN: HTCYAM; ISSN: 0385-5414

PUBLISHER: Japan Institute of Heterocyclic Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 128:270553

AB The preparation of 4-substituted 3,5-dihydro-1H-thieno[3,4-c]pyrrole 2,2-dioxides and their intermol. Diels-Alder reactions with DMAD are described. In the reaction with DMAD, 4-acetyl-3,5-dihydro-1H-thieno[3,4-c]pyrrole 2,2-dioxides acted as the corresponding 3,4-dimethylenepyrroles.

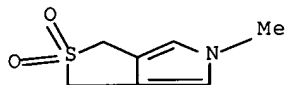
IT 144425-39-8

RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation and Diels-Alder reactions of 4-substituted 3,5-dihydro-1H-thieno[3,4-c]pyrrole 2,2-dioxides)

RN 144425-39-8 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 3,5-dihydro-5-methyl-, 2,2-dioxide (9CI) (CA INDEX NAME)



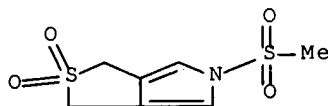
IT 205514-14-3P 205514-15-4P 205514-16-5P  
205514-17-6P 205514-18-7P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

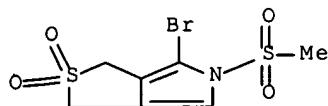
(preparation and Diels-Alder reactions of 4-substituted 3,5-dihydro-1H-thieno[3,4-c]pyrrole 2,2-dioxides)

RN 205514-14-3 HCAPLUS

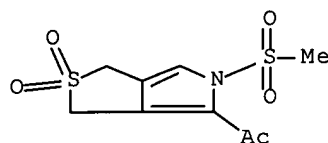
CN 1H-Thieno[3,4-c]pyrrole, 3,5-dihydro-5-(methylsulfonyl)-, 2,2-dioxide (9CI) (CA INDEX NAME)



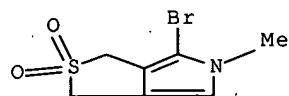
RN 205514-15-4 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 4-bromo-3,5-dihydro-5-(methylsulfonyl)-,  
2,2-dioxide (9CI) (CA INDEX NAME)

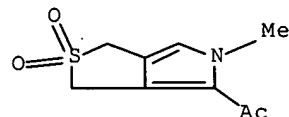
RN 205514-16-5 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 4-acetyl-3,5-dihydro-5-(methylsulfonyl)-,  
2,2-dioxide (9CI) (CA INDEX NAME)

RN 205514-17-6 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 4-bromo-3,5-dihydro-5-methyl-, 2,2-dioxide (9CI)  
(CA INDEX NAME)

RN 205514-18-7 HCAPLUS

CN Ethanone, 1-(3,5-dihydro-5-methyl-2,2-dioxido-1H-thieno[3,4-c]pyrrol-4-yl)-  
(9CI) (CA INDEX NAME)

## RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
=====	+	+	+	+	+

Ando, K	1994	37	1417	Heterocycles	HCAPLUS
Ando, K	1991		1765	J Chem Soc, Chem Com	HCAPLUS
Ando, K	1992		1100	J Chem Soc, Chem Com	HCAPLUS
Ando, K	1992		870	J Chem Soc, Chem Com	HCAPLUS
Ando, K	1993		2263	J Chem Soc, Perkin T	HCAPLUS
Ando, K	1994		741	Synlett	HCAPLUS
Ando, K	1995	51	129	Tetrahedron	HCAPLUS
Anon				CACH 3.9 system (CA	
Gonzalez, J	1995	117	3405	J Am Chem Soc	HCAPLUS
Hayashi, T	1993		2387	J Chem Soc, Perkin T	HCAPLUS
Konno, K	1995	36	1865	Tetrahedron Lett	HCAPLUS
Olofson, R	1984	49	2795	J Org Chem	HCAPLUS
Suzuki, T	1991	39	2164	Chem Pharm Bull	HCAPLUS
Suzuki, T	1993	35	57	Heterocycles	HCAPLUS
Suzuki, T	1994	38	961	Heterocycles	HCAPLUS
Suzuki, T	1990		1687	J Chem Soc, Chem Com	HCAPLUS
Suzuki, T	1995		807	J Chem Soc, Chem Com	HCAPLUS
Suzuki, T	1996		2699	J Chem Soc, Perkin T	HCAPLUS
Suzuki, T	1997		251	J Chem Soc, Perkin T	HCAPLUS
Takayama, H	1988		1044	J Chem Soc, Chem Com	HCAPLUS
Yamada, S	1979		583	Chem Lett	
Yamada, S	1983		1003	Chem Lett	HCAPLUS
Yamada, S	1983	48	3483	J Org, Chem	HCAPLUS
Yamada, S	1986	51	4934	J Org, Chem	HCAPLUS
Yamada, S	1981	22	2591	Tetrahedron Lett	HCAPLUS

L32 ANSWER 29 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1995:856612 HCAPLUS Full-text

DOCUMENT NUMBER: 123:270860

TITLE: Treatment of lithographic printing plate with good printability

INVENTOR(S): Kaneko, Akira; Saikawa, Masahiko

PATENT ASSIGNEE(S): Mitsubishi Paper Mills Ltd, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
JP 07199473	A	19950804	JP 1994-495	19940107
JP 3301844	B2	20020715		

PRIORITY APPLN. INFO.: JP 1994-495 19940107

AB The plate comprising a coarsened and anodized Al support coated with a phys. development nucleus layer (A) and a photosensitive Ag halide emulsion layer (B) is treated by developing and treating with a solution containing  $\geq 1$  kind of alkylene oxides or polyalkylene oxides, where A contains no binders and contacts with the anodized layer or A contains a hydrophilic colloid other than gelatin. The plate shows good ink receptibility and printability.

L32 ANSWER 30 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

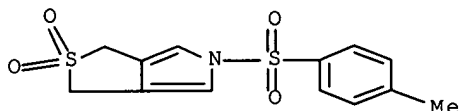
ACCESSION NUMBER: 1996:27220 HCAPLUS Full-text

DOCUMENT NUMBER: 124:201907

TITLE: Synthesis of furan-, thiophene- and pyrrole-fused sultines and their application in Diels-Alder reactions

AUTHOR(S): Chung, Wen-Sheng; Lin, Wen-Ju; Liu, Wen-Dar; Chen,

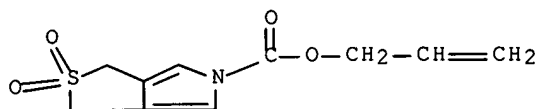
Liag-Gyi  
 CORPORATE SOURCE: Department Applied Chemistry, National Chiao Tung University, Hsinchu, 30050, Taiwan  
 SOURCE: Journal of the Chemical Society, Chemical Communications (1995), (24), 2537-9  
 CODEN: JCCCAT; ISSN: 0022-4936  
 PUBLISHER: Royal Society of Chemistry  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB The synthesis of 1,4-dihydrofurano[3,4-d]-3,2-oxathiin 2-oxide, 5,7-dimethyl-1,4-dihydrothieno[3,4-d]-3,2-oxathiin 2-oxide and 1,4-dihydro-6-tosylpyrrolo[3,4-d]3,2-oxathiin 2-oxide, precursors for nonclassical heteroarom. o-quinodimethanes, and their application in the Diels-Alder reactions are reported.  
 IT **144425-37-6P**  
 RL: SPN (Synthetic preparation); PREP (Preparation) (preparation of)  
 RN 144425-37-6 HCAPLUS  
 CN 1H-Thieno[3,4-c]pyrrole, 3,5-dihydro-5-[(4-methylphenyl)sulfonyl]-, 2,2-dioxide (9CI) (CA INDEX NAME)



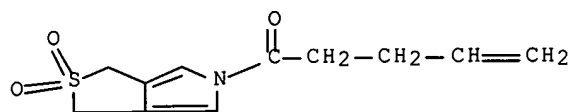
L32 ANSWER 31 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1995:542333 HCAPLUS Full-text  
 DOCUMENT NUMBER: 123:169572  
 TITLE: Intramolecular Diels-Alder reaction of new building blocks, N-substituted 3,5-dihydro-1H-thieno[3,4-c]pyrrole S,S-dioxides; a general route to the tricyclic azanorbornane framework  
 AUTHOR(S): Suzuki, Takayoshi; Takayama, Hiroaki  
 CORPORATE SOURCE: Faculty Pharmaceutical Sciences, Teikyo University, Kanagawa, 199-01, Japan  
 SOURCE: Journal of the Chemical Society, Chemical Communications (1995), (8), 807-8  
 CODEN: JCCCAT; ISSN: 0022-4936  
 PUBLISHER: Royal Society of Chemistry  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 123:169572  
 AB In spite of the absence of activating groups for dienophiles, N-substituted 3,5-dihydro-1H-thieno[3,4-c]pyrrole S,S-dioxides which contain terminal olefin substituents, undergo facile intramol. Diels-Alder reaction and subsequent spontaneous desulfonylation to give the corresponding tricyclic azanorbornane framework in good yields.  
 IT **167111-12-8P 167111-13-9P 167111-14-0P 167111-15-1P 167111-16-2P**  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent) (preparation of tricyclic azanorbornanes by intramol. Diels-Alder reaction of terminal olefin-substituted dihydrothienopyrrole dioxides)  
 RN 167111-12-8 HCAPLUS

10/520,050

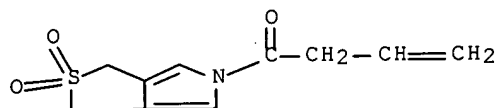
CN 1H-Thieno[3,4-c]pyrrole-5(3H)-carboxylic acid, 2-propenyl ester,  
2,2-dioxide (9CI) (CA INDEX NAME)



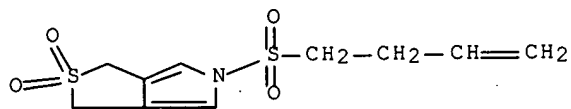
RN 167111-13-9 HCAPLUS  
CN 1H-Thieno[3,4-c]pyrrole, 3,5-dihydro-5-(1-oxo-4-pentenyl)-, 2,2-dioxide  
(9CI) (CA INDEX NAME)



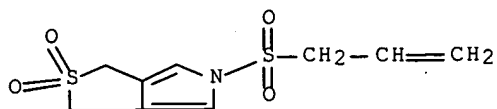
RN 167111-14-0 HCAPLUS  
CN 1H-Thieno[3,4-c]pyrrole, 3,5-dihydro-5-(1-oxo-3-butenyl)-, 2,2-dioxide  
(9CI) (CA INDEX NAME)



RN 167111-15-1 HCAPLUS  
CN 1H-Thieno[3,4-c]pyrrole, 5-(3-butenylsulfonyl)-3,5-dihydro-, 2,2-dioxide  
(9CI) (CA INDEX NAME)



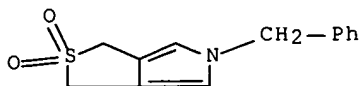
RN 167111-16-2 HCAPLUS  
CN 1H-Thieno[3,4-c]pyrrole, 3,5-dihydro-5-(2-propenylsulfonyl)-, 2,2-dioxide  
(9CI) (CA INDEX NAME)



L32 ANSWER 32 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1995:323621 HCAPLUS Full-text  
 DOCUMENT NUMBER: 122:160510  
 TITLE: New building blocks, 3,5-dihydro-1H-thieno-3,4-c]pyrrole 2,2-dioxides; preparation and their Diels-Alder reaction with dimethyl acetylenedicarboxylate  
 AUTHOR(S): Ando, Kaori; Kankake, Mutsuo; Suzuki, Takayoshi; Takayama, Hiroaki  
 CORPORATE SOURCE: Fac. Pharm. Sci., Teikyo Univ., Kanagawa, 199-1, Japan  
 SOURCE: Tetrahedron (1995), 51(1), 129-38  
 CODEN: TETRAB; ISSN: 0040-4020  
 PUBLISHER: Elsevier  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 122:160510  
 GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

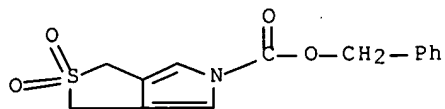
AB New building blocks, 3,5-dihydro-1H-thieno[3,4-c]pyrrole 2,2-dioxides I (R = CH<sub>2</sub>Ph, H, 4-MeC<sub>6</sub>H<sub>4</sub>SO<sub>2</sub>, CPh, CO<sub>2</sub>CH<sub>2</sub>Ph), have been prepared by the oxidation of their corresponding pyrroline derivs. II with DDQ or Chemical MnO<sub>2</sub>. The Diels-Alder reaction of I with di-Me acetylenedicarboxylate gave new types of compds.: 7-aza-2,3-dimethylenenorbornenes III, the 1:2 adducts IV, 1a,3a,6,9-tetrahydrobenz[g]indoles V, and dihydroindololsulfolene VI depending on the reaction conditions and the N-substituents. The reaction of I with bis(tert-butylsulfonyl)acetylene was also described.  
 IT 144425-31-0P 144425-35-4P 144425-37-6P  
 144425-38-7P 144425-39-8P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation and Diels-Alder reaction of thienopyrrole dioxides)  
 RN 144425-31-0 HCAPLUS  
 CN 1H-Thieno[3,4-c]pyrrole, 3,5-dihydro-5-(phenylmethyl)-, 2,2-dioxide (9CI)  
 (CA INDEX NAME)



RN 144425-35-4 HCAPLUS  
 CN 1H-Thieno[3,4-c]pyrrole-5(3H)-carboxylic acid, phenylmethyl ester,

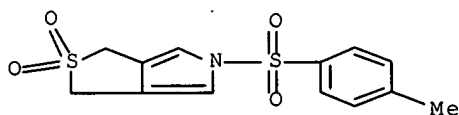
10/520,050

2,2-dioxide (9CI) (CA INDEX NAME)



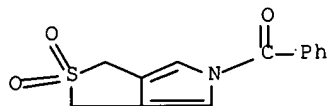
RN 144425-37-6 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 3,5-dihydro-5-[(4-methylphenyl)sulfonyl]-, 2,2-dioxide (9CI) (CA INDEX NAME)



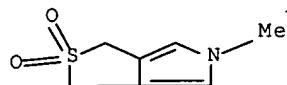
RN 144425-38-7 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 5-benzoyl-3,5-dihydro-, 2,2-dioxide (9CI) (CA INDEX NAME)



RN 144425-39-8 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 3,5-dihydro-5-methyl-, 2,2-dioxide (9CI) (CA INDEX NAME)



IT 144425-36-5P 161201-58-7P 161201-59-8P

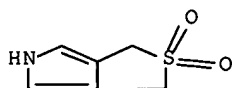
RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation and Diels-Alder reaction of thienopyrrole dioxides)

RN 144425-36-5 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 3,5-dihydro-, 2,2-dioxide (9CI) (CA INDEX NAME)

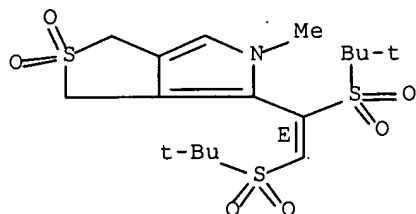




RN 161201-58-7 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 4-[1,2-bis[(1,1-dimethylethyl)sulfonyl]ethenyl]-3,5-dihydro-5-methyl-, 2,2-dioxide, (E)- (9CI) (CA INDEX NAME)

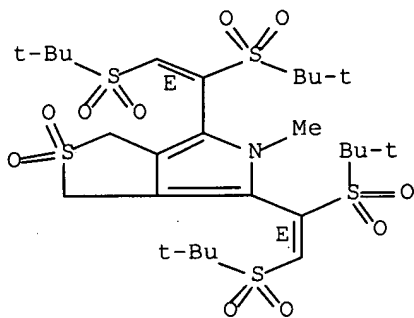
Double bond geometry as shown.



RN 161201-59-8 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 4,6-bis[1,2-bis[(1,1-dimethylethyl)sulfonyl]ethenyl]-3,5-dihydro-5-methyl-, 2,2-dioxide, (E,E)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



L32 ANSWER 33 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1995:19187 HCAPLUS Full-text

DOCUMENT NUMBER: 122:92438

TITLE: Photochromic compound

INVENTOR(S): Tomoda, Akihiko; Suzuki, Hisao; **Kaneko, Akira**  
; Tsuboi, Hideki

PATENT ASSIGNEE(S): Yamaha Corp., Japan

SOURCE: U.S., 13 pp. Cont. of U.S. Ser. No. 607,999,  
abandoned.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5296607	A	19940322	US 1992-902778	19920623
PRIORITY APPLN. INFO.:			JP 1989-90578	A 19891108
			JP 1990-89664	A 19900718
			US 1990-607999	B1 19901031

OTHER SOURCE(S): MARPAT 122:92438

GI For diagram(s), see printed CA Issue.

AB The title compds. are described by the general formula I (ring A = II, III, IV, or V; R1-4 = H, an alkyl group, or an aryl group; X = O or N-R6; when A = II, R5 = an electron donating group in the form of an indolyl group described by the general formula VI or a group described by the general formula VII; when A = III, IV, or V, R5 = an amino group, a di-alkyl amino group, a mono-alkyl amino group, a **pyrrolyl** group, an indolyl group, VI, or VII; R6 = H, an alkyl group, an aryl group, or an allyl group; R7 = an alkyl group, an aryl group, an aralkyl group, or an allyl group; R8 = an alkoxyl group, an amino group, a di-alkyl amino group, or a mono-alkyl amino group; ring B = a 5 or 6 membered heteroarom. ring or a condensed ring containing a 5 or 6 membered heteroarom. ring; Z = O, S, N-R9; R9 = an alkyl group, an aryl group, an aralkyl group, or an allyl group; k = 1 or 2; for V, k can also be 3 or 4; l = an integer in the range 0-5; m = an integer in the range 1-5; for groups attached to II, m can addnl. be 0; and n = an integer from 0 to 4). The introduction of electron donating groups into the heteroarom. structure is effective in improving the long wave length sensitivity without lowering thermal stability. Application is indicated to optical recording media, copying media, printing media, optical filters, and display materials.

L32 ANSWER 34 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1995:99769 HCAPLUS Full-text

DOCUMENT NUMBER: 122:55849

TITLE: Diels-Alder reaction of 3,5-dihydro-1H-thieno[3,4-c]pyrrole 2,2-dioxides with alkene dienophiles; facile preparation of 4,5,6,7-tetrahydroisoindoles

AUTHOR(S): Ando, Kaori; Kankake, Mutsuo; Suzuki, Takayoshi; Takayama, Hiroaki

CORPORATE SOURCE: Fac. Pharmaceutical Sciences, Teikyo Univ., Sagamiko, 199-01, Japan

SOURCE: Synlett (1994), (9), 741-2  
CODEN: SYNLES; ISSN: 0936-5214

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 122:55849

GI



AB 3,5-Dihydro-1H-thieno[3,4-c]pyrrole 2,2-dioxides I (R = CH<sub>2</sub>Ph, Me, CO<sub>2</sub>CH<sub>2</sub>Ph, CPh) when heated with alkene dienophiles (di-Me fumarate, di-Me maleate, trans-1,2-bis(phenylsulfonyl)ethylene) sequentially underwent Diels-Alder reaction on the pyrrole moiety, a cheletropic elimination of sulfur dioxide, a

10/520,050

Diels-Alder reaction of the resulting diene, and a retro Diels-Alder reaction to give 4,5,6,7-tetrahydroisoindoles II (R1 = R2 = CO2Me, R3 = H; R1 = R3 = CO2Me, R2 = H; R = CO2CH2Ph, R1 = R2 = SO2Ph, R3 = H) in excellent yields.

IT 144425-31-0 144425-35-4 144425-38-7

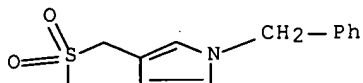
144425-39-8

RL: RCT (Reactant); RACT (Reactant or reagent)

(Diels-Alder of thienopyrrole dioxides with alkene dienophiles in preparation of isoindoles)

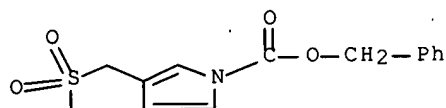
RN 144425-31-0 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 3,5-dihydro-5-(phenylmethyl)-, 2,2-dioxide (9CI)  
(CA INDEX NAME)



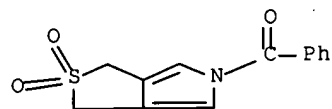
RN 144425-35-4 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-5(3H)-carboxylic acid, phenylmethyl ester, 2,2-dioxide (9CI) (CA INDEX NAME)



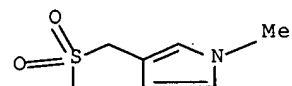
RN 144425-38-7 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 5-benzoyl-3,5-dihydro-, 2,2-dioxide (9CI) (CA INDEX NAME)



RN 144425-39-8 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 3,5-dihydro-5-methyl-, 2,2-dioxide (9CI) (CA INDEX NAME)



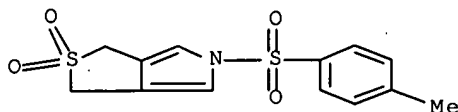
IT 144425-37-6

RL: RCT (Reactant); RACT (Reactant or reagent)

(attempted Diels-Alder with alkene dienophiles in preparation of isoindoles)

RN 144425-37-6 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 3,5-dihydro-5-[(4-methylphenyl)sulfonyl]-, 2,2-dioxide (9CI) (CA INDEX NAME)



L32 ANSWER 35 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1994:548983 HCAPLUS Full-text

DOCUMENT NUMBER: 121:148983

TITLE: fifty-two-week oral toxicity study of the new cognition-enhancing agent nefiracetam in dogs

AUTHOR(S): Hooks, W. N.; Burford, P.; Begg, S.; Gopinath, C.; Inage, F.; Kato, M.; Takayama, S.

CORPORATE SOURCE: Huntingdon Res. Cent. Ltd., Huntingdon/Cambridgeshire, UK

SOURCE: Arzneimittel-Forschung (1994), 44(2a), 228-38

CODEN: ARZNAD; ISSN: 0004-4172

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A 52-wk toxicity study by oral administration (capsule) was performed in beagle dogs with nefiracetam (N-(2,6-dimethylphenyl)-2-(2-oxo-1-pyrrolidinyl)acetamide, DM-9384, CAS 77191-36-7), a new cognition-enhancing agent, as a part of a safety evaluation program. Dosage of 0 (control), 10, 30 and 90 mg/kg/d were selected for this study. Treatment-related findings were confined to the 90 mg/kg/d level and indicated the kidney and the testis as the main target organs for toxicity. Signs of systemic toxicity, as indicated by the laboratory investigations, were not apparent until the second half of the study and included the principal findings of higher urea nitrogen, and creatinine with higher urinary vols. and corresponding lower sp. gr., osmolality and protein values. The microscopic pathol. examination showed various changes at the renal papilla, collecting ducts, and medullary and cortical scarring. This examination also revealed decreased spermatogenesis in the testes, with associated decreased nos. or absence of spermatozoa in the epididymides. At the 30 mg/kg/d level, the minor microscopic pathol. changes seen in the kidneys of one male animal were considered to be of equivocal toxicol. importance. There were no treatment-related findings at the low dosage level (10 mg/kg/d) and, therefore, this level was considered as the non-toxic effect level of nefiracetam.

L32 ANSWER 36 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1994:548982 HCAPLUS Full-text

DOCUMENT NUMBER: 121:148982

TITLE: Fifty-two-week oral toxicity study of the new cognition-enhancing agent nefiracetam in rats

AUTHOR(S): Hooks, W. N.; Colman, K. A.; Gopinath, C.; Inage, F.; Kato, M.; Takayama, S.

CORPORATE SOURCE: Huntingdon Res. Cent. Ltd., Huntingdon/Cambridgeshire, UK

SOURCE: Arzneimittel-Forschung (1994), 44(2a), 220-8  
 CODEN: ARZNAD; ISSN: 0004-4172  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB A 52-wk toxicity study by oral gavage administration was performed in Sprague-Dawley rats with nefiracetam (N-(2,6-dimethylphenyl)-2-(2-oxo-1-pyrrolidinyl)acetamide, DM-9384, CAS 77191-36-7), a new cognition-enhancing agent, as a part of a safety evaluation program. Dosages of 0 (control), 10, 30, 100 and 300 mg/kg/d were selected for this study. Treatment-related findings were confined to the 300 mg/kg/d level and, to a lesser extent, the 100 and 30 mg/kg/d levels, with the investigations indicating the kidney as the main target organ for toxicity. The microscopic pathol. examination of this organ showed papillary epithelial hyperplasia and/or collecting duct epithelial hyperplasia, with cortical scarring and occasional mineralization in the papilla. Histopathol. changes in the liver, centrilobular hepatocyte enlargement (accompanied by fine vacuolization) and foci of eosinophilic hepatocytes were considered to reflect the induction of drug-metabolizing enzymes in the liver. Other tissues showing treatment-related findings included the salivary glands, urinary bladder, spleen, pancreas and adrenals. Addnl. other notable findings included (in the high dosage males only) a decline in body weight (from week 34), lower erythrocytic characteristics and slightly higher plasma urea nitrogen and alkaline phosphatase values. The results in this study, therefore, indicated that the non-toxic effect level was 10 mg/kg/d of nefiracetam.

L32 ANSWER 37 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1994:570406 HCAPLUS Full-text

DOCUMENT NUMBER: 121:170406

TITLE: Thirteen-week oral toxicity study of the new cognition-enhancing agent Nefiracetam in dogs

AUTHOR(S): Sugawara, T.; Kato, M.; Suzuki, N.; Akahane, K.; Takayama, S.

CORPORATE SOURCE: Drug Safety Research Center, Daiichi Pharmaceutical Co. Ltd., Tokyo, Japan

SOURCE: Arzneimittel-Forschung (1994), 44(2A), 217-19  
 CODEN: ARZNAD; ISSN: 0004-4172

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The 13-wk oral toxicity of nefiracetam (N-(2,6-dimethylphenyl)-2-(2-oxo-1-pyrrolidinyl) acetamide, DM-9384, CAS 77191-36-7), a new cognition-enhancing agent, was investigated in Beagle dogs of both sexes. No change was observed in the 20 mg/kg group. Hypospermatogenesis and slightly increased deposition of hemosiderin in the spleen were seen in male dogs treated with 60 mg/kg or more. Dosing at 180 mg/kg induced a decrease in food consumption, increases in urinary volume and urinary protein, and renal papillary necrosis in both male and female dogs. The non-toxic dose was 20 mg/kg under these exptl. conditions.

L32 ANSWER 38 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1994:548981 HCAPLUS Full-text

DOCUMENT NUMBER: 121:148981

TITLE: Thirteen-week oral toxicity study of the new cognition-enhancing agent nefiracetam in rats

AUTHOR(S): Jindo, T.; Shimizu, Y.; Kato, M.; Takayama, S.

CORPORATE SOURCE: Drug Safety Research Center, Daiichi Pharmaceutical Co., Ltd., Tokyo, Japan

SOURCE: Arzneimittel-Forschung (1994), 44(2a), 214-16

CODEN: ARZNAD; ISSN: 0004-4172

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Thirteen-week toxicity of nefiracetam (N-(2,6-dimethylphenyl)-2-(2-oxo-1-pyrrolidinyl) acetamide, DM-9384, CAS 77191-36-7) was examined in rats by oral administration of 30, 120, or 480 mg/kg. Rats receiving 480 mg/kg showed salivation, prone position, increased water consumption, increased levels of serum total cholesterol, total protein, albumin and total bilirubin, increased liver weight and hypertrophy of liver cells. This hypertrophy of hepatocytes with increased liver weight was also observed in males at 120 mg/kg. The non-toxic dose of nefiracetam under the present exptl. conditions was therefore determined as 30 mg/kg.

L32 ANSWER 39 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1994:595740 HCAPLUS Full-text

DOCUMENT NUMBER: 121:195740

TITLE: Single dose toxicity study of the new cognition-enhancing agent nefiracetam in mice, rats, and dogs

AUTHOR(S): Sugawara, T.; Kato, M.; Furuhashi, K.; Inage, F.; Suzuki, N.; Takayama, S.

CORPORATE SOURCE: Drug safety Res. Cent., Daiichi Pharmaceutical Co., Ltd., Tokyo, Japan

SOURCE: Arzneimittel-Forschung (1994), 44(2A), 211-13

CODEN: ARZNAD; ISSN: 0004-4172

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Single oral dose toxicity of nefiracetam (N-(2,6-dimethylphenyl)-2-(2-oxo-1-pyrrolidinyl) acetamide, DM-9384, CAS 77191-36-7), a new cognition-enhancing agent, was examined in ddY mice, SD rats, and beagle dogs. The LD50 values of nefiracetam were 2005 mg/kg for male mice and 1940 mg/kg for female mice, 1182 mg/kg for male rats and 1408 mg/kg for female rats, and more than 500 mg/kg for beagle dogs. Common toxic signs in all species were a decrease in locomotor activity, lying on the side or back and loss of righting reflex, considered to be caused by depression of the central nervous system. Pathol., no remarkable change associated with nefiracetam administration was observed in any species. In addition, toxicities of the decomposition product (D-2) and byproducts (Bis, 3-Me and 4-Me) of nefiracetam were examined by oral administration, and of the metabolites (M-3 and M-11) by i.v. injection in male ddY mice. The clin. signs in mice treated with these byproducts were similar to those caused by nefiracetam.

L32 ANSWER 40 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1992:581898 HCAPLUS Full-text

DOCUMENT NUMBER: 117:181898

TITLE: Photochromic fulgides

INVENTOR(S): Tomota, Akihiko; Suzuki, Hisao; Kaneko, Akira; Tsuboi, Hideki

PATENT ASSIGNEE(S): Yamaha K. K., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

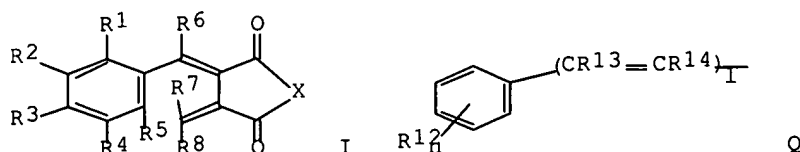
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 04134079  
 PRIORITY APPLN. INFO.:  
 GI

A 19920507 JP 1990-251473  
 JP 1990-251473

19900920  
 19900920



AB The title compds. I [R1, R3, R5-8 = H, halo, alkyl, alkoxy, aryl, aryloxy, allyl, aralkyl, amino, **pyrrolyl**, furyl, thienyl, thiazolyl, oxazolyl, cyano, nitro, ester, CF3; R2, R4 = **pyrrolyl**, indolyl, NR10R11, Q; X = O, NR9; R9 = H, alkyl, aryl, allyl, aralkyl; R10-11 = H, alkyl, aryl; R12 = alkoxy, amino, (di)alkylamino, (di)arylamino; R13-14 = H, alkyl, aryl; l, n = 0-5] are claimed. I show good light and thermal stability and durability and are useful for optical memory, optical recording, displays, etc.

L32 ANSWER 41 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1992:540754 HCAPLUS Full-text

DOCUMENT NUMBER: 117:140754

TITLE: Oxazole fulgide photochromic compound

INVENTOR(S): Tomota, Akihiko; Suzuki, Hisao; **Kaneko, Akira**  
 ; Tsuboi, Hideki

PATENT ASSIGNEE(S): Yamaha Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 04128282	A	19920428	JP 1990-247783	19900918
PRIORITY APPLN. INFO.:			JP 1990-247783	19900918

OTHER SOURCE(S): MARPAT 117:140754

GI For diagram(s), see printed CA Issue.

AB The compound consists of I (R1 = H, halo, alkyl, aryl, allyl, alkoxy, aryloxy, aralkyl, amino, monoalkylamino, dialkylamino, **pyrrolyl**, indolyl, Q, Q1; R7 = alkyl, alkoxy, amino, monoalkylamino, dialkylamino; l, m = 0-5; R8 = alkyl, aryl, aralkyl, allyl; A = 5- or 6-membered heterocyclic group, etc.; n = 0-4; R2-3 = H, halo, alkyl, alkoxy, aryl, allyl, aryloxy, aralkyl, amino, monoalkylamino, dialkylamino, **pyrrolyl**, furyl, thienyl, thiazolyl, oxazolyl, cyano, NO2, ester, trifluoromethyl; X = O, NR6; R6 = H, alkyl, allyl, aryl, aralkyl; R4R5 = adamantylidene, dicyclopropylmethylidene). The compound showed absorption at long wavelength and is useful for recording using semiconductor laser.

L32 ANSWER 42 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1992:561036 HCAPLUS Full-text

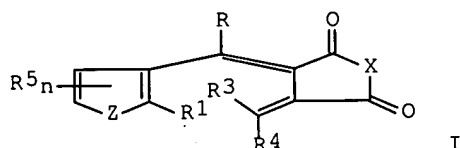
DOCUMENT NUMBER: 117:161036

TITLE: Styryl fulgide photochromic compound

10/520,050

INVENTOR(S): Tomota, Akihiko; Suzuki, Hisao; **Kaneko, Akira**  
 ; Tsuboi, Hideki  
 PATENT ASSIGNEE(S): Yamaha Corp., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 04128281	A	19920428	JP 1990-247784	19900918
PRIORITY APPLN. INFO.:			JP 1990-247784	19900918
OTHER SOURCE(S):	MARPAT 117:161036			
GI				

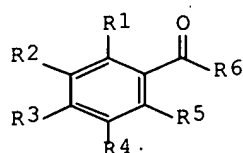


AB The composition consists of I (R1-4 = H, halo, alkyl, aryl, allyl, alkoxy, aryloxy, allyloxy, aralkyl, amino, **pyrrolyl**, furyl, thienyl, thiazolyl, oxazolyl, cyano, NO<sub>2</sub>, ester, trifluoromethyl; R<sub>5</sub> = styryl; n = 1, 2; X = O, NR<sub>6</sub>; R<sub>6</sub> = H, alkyl, allyl, aryl, aralkyl; Z = O, S, NR<sub>6</sub>). The compound showed absorption at long wavelength and is useful for recording using semiconductor laser.

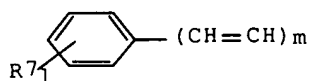
L32 ANSWER 43 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1992:561035 HCAPLUS Full-text  
 DOCUMENT NUMBER: 117:161035  
 TITLE: Aldehyde intermediates for photochromic compounds  
 INVENTOR(S): Tomota, Akihiko; Suzuki, Hisao; **Kaneko, Akira**  
 ; Tsuboi, Hideki  
 PATENT ASSIGNEE(S): Yamaha Corp., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 04128255	A	19920428	JP 1990-251472	19900920
PRIORITY APPLN. INFO.:			JP 1990-251472	19900920
GI				





I



Q

AB The intermediate consists of I (R1, R3, R5 = H, alkyl, aryl, allyl, OH, alkoxy, aryloxy, aralkyl, amino, **pyrrolyl**, furyl, thienyl, thiazolyl, oxazolyl, cyano, NO<sub>2</sub>, ester group, trifluoromethyl; R2, R4 = Q; R7 = alkoxy, amino, monoalkylamino, dialkylamino, monoarylamino, diarylamino; l, m = 1-5; R6 = H, alkyl, aryl, **pyrrolyl**, furyl, thienyl, thiazolyl, oxazolyl, aralkyl). An obtained fulgide compound from the intermediate showed absorption at long wavelength and is useful for recording using semiconductor lasers.

L32 ANSWER 44 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1992:633888 HCAPLUS Full-text

DOCUMENT NUMBER: 117:233888

TITLE: New building blocks, 3,5-dihydro-1H-thieno[3,4-c]pyrrole 2,2-dioxides; preparation and their Diels-Alder reaction with dimethyl acetylenedicarboxylate

AUTHOR(S): Ando, Kaori; Kankake, Mutuo; Suzuki, Takayoshi; Takayama, Hiroaki

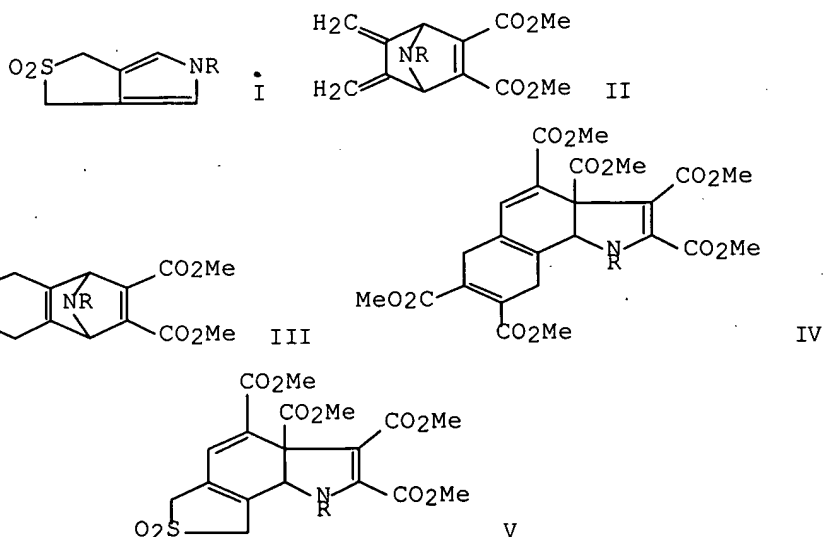
CORPORATE SOURCE: Fac. Pharm. Sci., Teikyo Univ., Sagamiko, 199-01, Japan

SOURCE: Journal of the Chemical Society, Chemical Communications (1992), (16), 1100-2  
CODEN: JCCCAT; ISSN: 0022-4936

DOCUMENT TYPE: Journal

LANGUAGE: English

GI



AB New building blocks, 3,5-dihydro-1H-thieno[3,4-c]pyrrole 2,2-dioxides I (R = PhCH<sub>2</sub>, Me, PhCH<sub>2</sub>O<sub>2</sub>C, 4-MeC<sub>6</sub>H<sub>4</sub>SO<sub>2</sub>, Bz) were prepared and treated with di-Me acetylenedicarboxylate to give new compds.: 7-aza-2,3- dimethylenenorbornene II, the 1:2 adduct III, 1a,3a,6,9- tetrahydrobenz[g]indole IV, and dihydroindolosulfolene V depending on the reaction conditions and the N-substituent.

IT 144425-31-0P 144425-35-4P 144425-37-6P

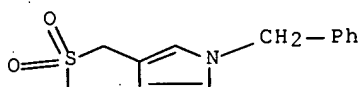
144425-38-7P 144425-39-8P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation and Diels-Alder reaction of, with acetylenedicarboxylate)

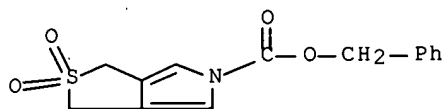
RN 144425-31-0 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 3,5-dihydro-5-(phenylmethyl)-, 2,2-dioxide (9CI)  
(CA INDEX NAME)



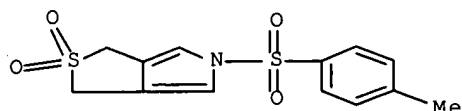
RN 144425-35-4 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole-5(3H)-carboxylic acid, phenylmethyl ester, 2,2-dioxide (9CI) (CA INDEX NAME)



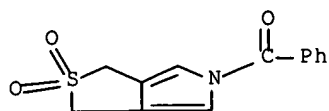
RN 144425-37-6 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 3,5-dihydro-5-[(4-methylphenyl)sulfonyl]-, 2,2-dioxide (9CI) (CA INDEX NAME)



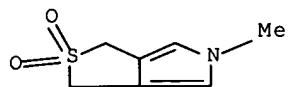
RN 144425-38-7 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 5-benzoyl-3,5-dihydro-, 2,2-dioxide (9CI) (CA INDEX NAME)



RN 144425-39-8 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 3,5-dihydro-5-methyl-, 2,2-dioxide (9CI) (CA INDEX NAME)

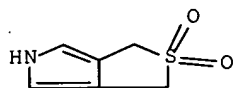


IT 144425-36-5P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 144425-36-5 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 3,5-dihydro-, 2,2-dioxide (9CI) (CA INDEX NAME)



L32 ANSWER 45 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1992:72371 HCAPLUS Full-text

DOCUMENT NUMBER: 116:72371

TITLE: Photochromic fulgide compounds

INVENTOR(S): Tomota, Akihiko; Kaneko, Akira; Suzuki, Hisao; Tsuboi, Hideki

PATENT ASSIGNEE(S): Yamaha Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 03151383	A	19910627	JP 1989-290579	19891108
PRIORITY APPLN. INFO.:			JP 1989-290579	19891108

GI For diagram(s), see printed CA Issue.

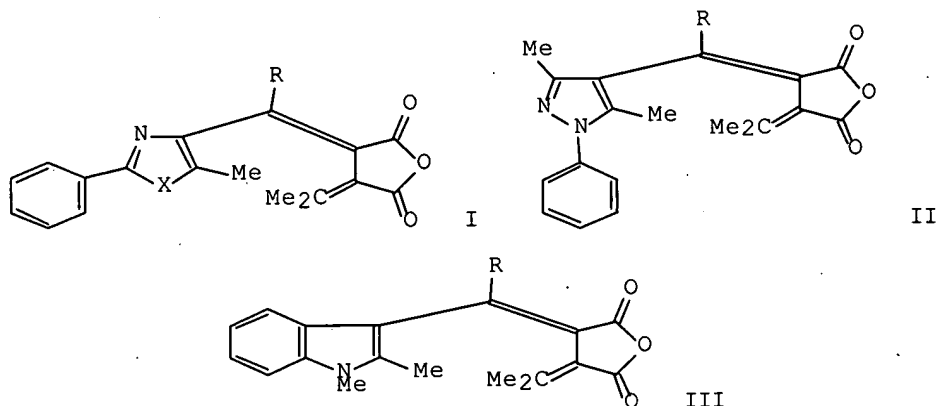
AB Photochromic fulgides I [R1 = alkyl, alkoxy, NH2, (di)alkylamino, *pyrrolyl*, indolyl, (CH:CH)1C6H5-mR7m, Q; A = 5- or 6-membered heterocyclic ring or condensed ring containing the heterocyclic ring; R2-5 = H, halo, alkyl, alkoxy, aryl, aryloxy, allyl, aralkyl, amino, *pyrrolyl*, furyl, thienyl, thiazolyl, oxazolyl, cyano, NO2, ester, CF3; X = O, NR6; R6 = H, alkyl, allyl,

aryl, aralkyl; R7 = alkoxy, NH2, (di)alkylamino; R8 = alkyl, aryl, aralkyl, allyl; l, m = 0-5; n = 0-4] are claimed. I show good thermal stability in the dark and durability and are useful for optical memory, optical recording, displays, etc.,. Thus, acetylacetone was treated with NaNO2 to give (MeCO)2C:NOH, which was treated with PhCHO and the resulting 4-acetyl-5-methyl-2-phenyloxazole (II) N-oxide hydrochloride was stirred with Zn to give II. Treatment of II with di-Et isopropylidenesuccinate, hydrolysis of the resulting half ester, dehydration-cyclization with Ac2O, and photoisomerization gave I (R1 = Ph, R2-5 = Me, X = O) (III). III in PhMe colored with maximum absorption 462 nm by cyclization on irradiation with 365 nm UV and decolored on irradiation with  $\geq 390$  nm visible light.

L32 ANSWER 46 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1990:601448 HCAPLUS Full-text  
 DOCUMENT NUMBER: 113:201448  
 TITLE: Photochromic fulgides containing heterocycles  
 INVENTOR(S): Suzuki, Hisao; **Kaneko, Akira**; Ishizuka, Mitsuo; Tomota, Akihiko  
 PATENT ASSIGNEE(S): Yamaha Corp., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 02160779	A	19900620	JP 1988-314673	19881213
PRIORITY APPLN. INFO.:			JP 1988-314673	19881213

GI



AB The title photochromic fulgides I (R = C5-31 alkyl; X = O, S), II, and III are claimed. The above compds. show higher durability and faster response than conventional photochromic fulgides containing furan, thiophen, or **pyrrole** ring instead of oxazole or thiazole in I, pyrazole in II, or indole in III and are useful for optical recording, optical memory, copying materials, etc. Acetone

was acylated with Me(CH<sub>2</sub>)<sub>16</sub>CO<sub>2</sub>Et and the resulting Me(CH<sub>2</sub>)<sub>16</sub>COCH<sub>2</sub>COMe was treated with NaNO<sub>2</sub> to give Me(CH<sub>2</sub>)<sub>16</sub>COC(:NOH)COMe, which was treated with PhCHO to give 2-phenyl-5-methyl-4-stearoyloxazole. This was treated with EtOCOC(:CMe<sub>2</sub>)CH<sub>2</sub>CO<sub>2</sub>Et and the resulting half ester was hydrolyzed, followed by dehydration to give I (R = heptadecyl, X = O) (IV) and its (Z)-isomer. IV in toluene colored with maximum absorption 465 nm by cyclization on irradiation with 365 nm UV and decolored on irradiation with ≥390 nm visible light and a poly(Me methacrylate) film containing IV showed high durability in repeated use.

L32 ANSWER 47 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1989:448196 HCAPLUS Full-text  
 DOCUMENT NUMBER: 111:48196  
 TITLE: Photochromic fulgide compounds  
 INVENTOR(S): Tomota, Akihiko; Kaneko, Akira; Ishizuka, Mitsuo  
 PATENT ASSIGNEE(S): Yamaha Motor Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 01034983	A	19890206	JP 1987-191025	19870730
JP 06013512	B	19940223		

PRIORITY APPLN. INFO.: JP 1987-191025 19870730

OTHER SOURCE(S): MARPAT 111:48196

GI For diagram(s), see printed CA Issue.

AB The title compds. having the structure I (R<sub>1</sub>-R<sub>5</sub> = H, halo, alkyl, alkoxy, aryloxy, allyl, aralkyl, **pyrrolyl**, furyl, thienyl, thiazolyl, NH<sub>2</sub>, CN, NO<sub>2</sub>, ester, CF<sub>3</sub>; X = O, NR<sub>8</sub>; R<sub>8</sub> = H, alkyl, allyl, aryl, aralkyl) are prepared I show excellent thermal stability and are useful in optical recording materials, optical memories, copying, etc. Thus, chlorination of 2,3-pentanedione with SO<sub>2</sub>Cl<sub>2</sub> gave 4-chloropentane-2,3-dione, which was refluxed with PhCSNH<sub>2</sub> in EtOH to give 4-acetyl-5-methyl-2-phenylthiazole (II). Then, a mixture of II and di-Et isopropylidenesuccinate was added to Me<sub>3</sub>COK-Me<sub>3</sub>COH, then the resulting half ester was hydrolyzed in KOH-EtOH and cyclized by Ac<sub>2</sub>O to give (Z)-I (R<sub>1</sub> = Ph; R<sub>2</sub>-R<sub>5</sub> = Me), 140 mg of which was isomerized into the (E)-isomer by photolysis. A solution of the (E)-isomer in PhMe colored by UV irradiation, returned to its original state by irradiation with light (≥390 nm), and a poly(Me methacrylate) film containing the (E)-isomer showed good thermal stability.

L32 ANSWER 48 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1989:448195 HCAPLUS Full-text  
 DOCUMENT NUMBER: 111:48195  
 TITLE: Photochromic dithiazolylethylene compounds  
 INVENTOR(S): Tomota, Akihiko; Kaneko, Akira; Ishizuka, Mitsuo; Suzuki, Hisao  
 PATENT ASSIGNEE(S): Yamaha Motor Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 01034973	A	19890206	JP 1987-191026	19870730
PRIORITY APPLN. INFO.:			JP 1987-191026	19870730

OTHER SOURCE(S): MARPAT 111:48195

GI For diagram(s), see printed CA Issue.

AB The title compds. of the structure I (R1-R6 = H, halo, alkyl, alkoxy, aryl, aryloxy, aralkyl, allyl, **pyrrolyl**, furyl, thienyl, NH2, CN, NO2, thiazolyl, ester, amide, CF3) are prepared I show excellent heat stability and are useful in optical recording materials, optical memories, copying, etc. Thus, refluxing 2,3-pentanedione and SO2Cl2 in CCl4 gave 4-chloropentane-2,3-dione, which was treated with PhCSNH2 in EtOH under reflux to give 4-acetyl-5-methyl-2-phenylthiazole (II). Then, a solution of II in THF was treated with TiCl4 and Zn under reflux for 2 h to give I (R1, R5 = Ph; R2-R4, R6 = Me) (III). A solution of poly(Me methacrylate) and III in cyclohexanone was applied on a glass plate to form a 1.0- $\mu$ m film, which was colored by UV irradiation, returned to its original state by irradiation with light ( $\geq 390$  nm), and showed good thermal stability:

L32 ANSWER 49 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1989:448194 HCAPLUS Full-text

DOCUMENT NUMBER: 111:48194

TITLE: Photochromic **dipyrrolylethylene** compounds

INVENTOR(S): Tomota, Akihiko; Kaneko, Akira; Ishizuka, Mitsuo; Suzuki, Hisao

PATENT ASSIGNEE(S): Yamaha Motor Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

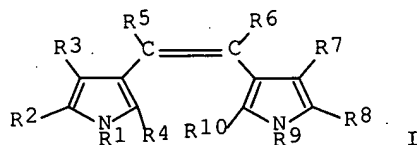
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 01034958	A	19890206	JP 1987-191027	19870730
PRIORITY APPLN. INFO.:			JP 1987-191027	19870730
OTHER SOURCE(S):			MARPAT 111:48194	

GI



AB The title compds. of the structure I (R1, R3-R7, R9, R10 = H, halo, alkyl, alkoxy, aryl, aryloxy, aralkyl, allyl, **pyrrolyl**, furyl, thienyl, NH2, CN, NO2, ester, amide, CF3; R2, R8 = CN, NO2, CF3) are prepared I show excellent stability in repeated recording and are useful in optical recording materials, optical memories, copying, etc. Thus, refluxing 5-cyano-1,2-**dimethylpyrrole**

in Ac<sub>2</sub>O containing H<sub>2</sub>SO<sub>4</sub> for 1 h gave 3-acetyl-5-cyano-1,2-**dimethylpyrrole**, which was treated with TiCl<sub>4</sub> and Zn under reflux for 2.5 h to give 9.3% cis-1,2-dimethyl-1,2-bis(5-cyano-1,2-dimethyl-3-**pyrrolyl**)ethene (II). A solution of poly(Me methacrylate) and II in cyclohexanone was applied on a glass plate to form a 1.0- $\mu$ m film, which was colored by UV irradiation and returned to its original state by irradiation with light ( $\geq 450$  nm).

L32 ANSWER 50 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1989:448192 HCAPLUS Full-text

DOCUMENT NUMBER: 111:48192

TITLE: Photochromic fulgide compounds

INVENTOR(S): **Kaneko, Akira**; Ishizuka, Mitsuo; Suzuki, Hisao; Tomota, Akihiko

PATENT ASSIGNEE(S): Yamaha Motor Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

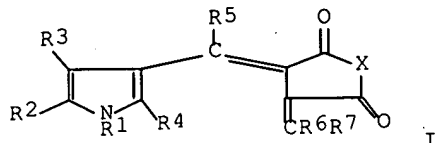
DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 01022872	A	19890125	JP 1987-177546	19870716
PRIORITY APPLN. INFO.: GI			JP 1987-177546	19870716



AB The title compds. of the structure I (R<sub>1</sub>, R<sub>3</sub>-R<sub>7</sub> = H, halo, alkyl, aryl, aralkyl, alkoxy, aryloxy, pyrrolyl, furyl, thienyl, NH<sub>2</sub>, CN, NO<sub>2</sub>, CF<sub>3</sub>; R<sub>2</sub> = CN, NO<sub>2</sub>, CF<sub>3</sub>, ester, carbamoyl; X = O, NR<sub>8</sub>; R<sub>8</sub> = H, alkyl, aryl, aralkyl) are useful in optical recording materials, optical memories, copying, etc. Thus, a mixture of 3-acetyl-5-cyano-1,2-**dimethylpyrrole** and di-Et isopropylidenesuccinate was added to a solution of NaH in PhMe, then the resulting half ester was hydrolyzed in KOH-EtOH and cyclized by Ac<sub>2</sub>O to give (E)-I (R<sub>1</sub>, R<sub>4</sub>-R<sub>7</sub> = Me; R<sub>2</sub> = CN; R<sub>3</sub> = H; X = O), whose solution in PhMe was colored upon exposure to UV irradiation and returned to its original state upon irradiation with light ( $\geq 500$  nm).

L32 ANSWER 51 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1989:604810 HCAPLUS Full-text

DOCUMENT NUMBER: 111:204810

TITLE: Cadmium sulfide particle doped polymer films for nonlinear optics

AUTHOR(S): Ohashi, Y.; Ito, H.; Hayashi, T.; Nitta, A.; Matsuda, H.; Okada, S.; Nakanishi, H.; **Kato, M.**

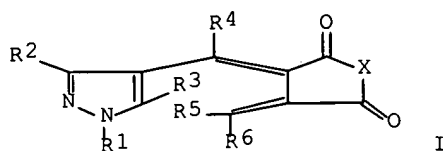
CORPORATE SOURCE: Cent. Res. Inst., Mitsui Toatsu Chem., Inc., Yokohama,

247, Japan  
 SOURCE: Springer Proceedings in Physics (1989), Volume Date  
 1988, 36(Nonlinear Opt. Org. Semicond.), 81-4  
 CODEN: SPPPEL; ISSN: 0930-8989  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB CdS particle doped polymer films were prepared by a precipitation-in-gel method in which CdS particles were precipitated in aqueous swollen polymeric gels of crosslinked N-acryloyl-**pyrrolidine** copolymers by the double decomposition reaction between Cd(OAc)<sub>2</sub> and Na<sub>2</sub>S. Ultrafine particles of average size 30-60 Å were formed in the polymer films. The absorption edge was blue-shifted with the decrease of particle size. Third-harmonic generation (THG) was investigated with 1.06-1.50 μm pulsed laser light. Even by the THG measurements, the doped film showed a resonant-enhancement effect.

L32 ANSWER 52 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1989:222671 HCAPLUS Full-text  
 DOCUMENT NUMBER: 110:222671  
 TITLE: Flugide photochromic derivative  
 INVENTOR(S): Kaneko, Akira; Ishizuka, Mitsuo; Tomota, Akihiko  
 PATENT ASSIGNEE(S): Yamaha Motor Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 63166879	A	19880711	JP 1986-313397	19861227
PRIORITY APPLN. INFO.:			JP 1986-313397	19861227
OTHER SOURCE(S):	MARPAT 110:222671			
GI				



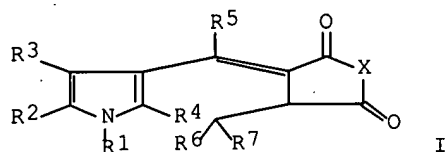
AB The title photochromic derivative is I [R<sub>1</sub>-R<sub>6</sub> = H, halo, alkyl, aryl, aralkyl, alkoxy, aryloxy, **pyrrolyl**, furyl, ethynyl, amino; X = O, NR<sub>7</sub> (R<sub>7</sub> = H, alkyl, aryl, aralkyl)]. I [R<sub>1</sub> = R<sub>2</sub> = R<sub>3</sub> = R<sub>4</sub> = R<sub>5</sub> = R<sub>6</sub> = methyl; X = O] showed λ<sub>max</sub> = 568 nm at coloration which was higher than that of the conventional photochromic material.

L32 ANSWER 53 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1989:222670 HCAPLUS Full-text  
 DOCUMENT NUMBER: 110:222670  
 TITLE: Fulgide photochromic derivative



INVENTOR(S): **Kaneko, Akira**; Ishizuka, Mitsuo; Tomota, Akihiko  
 PATENT ASSIGNEE(S): Yamaha Motor Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

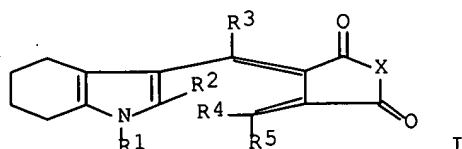
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 63166878	A	19880711	JP 1986-313400	19861227
PRIORITY APPLN. INFO.:			JP 1986-313400	19861227
OTHER SOURCE(S):	MARPAT 110:222670			
GI				



AB The title photochromic derivative is I [R1-R7 = H, halo, alkyl, aryl, aralkyl, alkoxy, aryloxy, *pyrrolyl*, furyl, ethynyl, amino; X = O, NR8 (R8 = H, alkyl, aryl, aralkyl) (except for R1 = R4 = R5 = R6 = R7 = Me and X = O)]. I [R1 = R2 = R4 = R5 = R6 = R7 = methyl; R3 = H; X = O] showed  $\lambda_{\max}$  = 594 nm at coloration which was higher than that of the conventional photochromic material.

L32 ANSWER 54 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1989:222672 HCAPLUS Full-text  
 DOCUMENT NUMBER: 110:222672  
 TITLE: Fulgide photochromic derivative  
 INVENTOR(S): **Kaneko, Akira**; Ishizuka, Mitsuo; Tomota, Akihiko  
 PATENT ASSIGNEE(S): Yamaha Motor Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 63166877	A	19880711	JP 1986-313398	19861227
PRIORITY APPLN. INFO.:			JP 1986-313398	19861227
OTHER SOURCE(S):	MARPAT 110:222672			
GI				



AB The title photochromic derivative is I [R1-R5 = H, halo, alkyl, aryl, aralkyl, alkoxy, aryloxy, **pyrrolyl**, furyl, ethynyl, amino; X = O, NR6 (R6 = H, alkyl, aryl, aralkyl)]. I [R1 = R2 = R3 = R4 = R5 = CH3; X = O] showed  $\lambda_{\max}$  = 585 nm at coloration which was higher than that of the conventional photochromic material.

L32 ANSWER 55 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1989:104653 HCAPLUS Full-text

DOCUMENT NUMBER: 110:104653

TITLE: Photochemical fatigue resistances and thermal stabilities of heterocyclic fulgides in PMMA film

AUTHOR(S): **Kaneko, Akira**; Tomoda, Akihiko; Ishizuka, Mitsuo; Suzuki, Hisao; Matsushima, Ryoka

CORPORATE SOURCE: Basic Res. Dev. Lab., Yamaha Co., Toyooka, 438-01, Japan

SOURCE: Bulletin of the Chemical Society of Japan (1988), 61(10), 3569-73

CODEN: BCSJA8; ISSN: 0009-2673

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Thermal stabilities of the colored forms at 80° and photochem. fatigue resistances against coloration-discoloration cycles were measured in PMMA thin films using 14 derivs. of fulgide with different heterocyclic structures. The indolyl, oxazolyl, and thiazolyl derivs. showed very low thermal degradabilities (TD  $\leq$  1.5%/d) whereas the indolyl and pyrazolyl derivs. showed low photochem. fatigues (PF  $\leq$  0.2%/cycle), as compared with the furyl, thienyl, and **pyrrolyl** derivs. However, many of them featured low photoresponsiveness and low absorptivities for coloration on UV irradiation

L32 ANSWER 56 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1987:458773 HCAPLUS Full-text

DOCUMENT NUMBER: 107:58773

TITLE: Synthesis of 1-(o-substituted-phenyl)-3,4-dimethylenepyrrolidines by the thermal elimination of sulfur dioxide

AUTHOR(S): Ottenbrite, Raphael M.; Chin, Henry; Alston, Peter V.  
CORPORATE SOURCE: Dep. Chem., Virginia Commonw. Univ., Richmond, VA, 23284, USA

SOURCE: Journal of Heterocyclic Chemistry (1986), 23(6), 1725-9

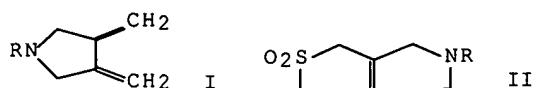
CODEN: JHTCAD; ISSN: 0022-152X

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 107:58773

GI



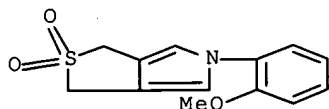
AB Precursors of 1-(o-substituted-phenyl)-3,4-dimethylenepyrrolidines I (R = 2-MeOC<sub>6</sub>H<sub>4</sub>, 2-MeC<sub>6</sub>H<sub>4</sub>, 2-BrC<sub>6</sub>H<sub>4</sub>), namely 5-(o-substituted-phenyl)-1,3,4,6-tetrahydrothieno[3,4-c]pyrrole 2,2-dioxides II, were synthesized by reacting RNH<sub>2</sub> with 3,4-bis(bromomethyl)-2,5-dihydrothiophene 1,1-dioxide. A disubstitution product along with the desired II was obtained when excess amine was used to neutralize the amine salts that were formed from nucleophilic substitution. A 1,4-HBr elimination product was obtained in three out of four cases when sodium carbonate was used to neutralize the amine salts. The 1,4-HBr elimination product resulted from a competing base attack on the acidic sulfolene protons. The 3,4-dimethylenepyrrolidines were obtained by thermal elimination of sulfur dioxide from II.

IT 109346-47-6P 109346-48-7P 109346-49-8P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

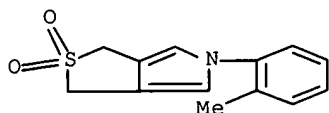
RN 109346-47-6 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 3,5-dihydro-5-(2-methoxyphenyl)-, 2,2-dioxide  
(9CI) (CA INDEX NAME)



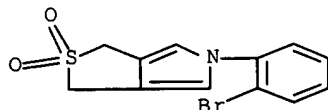
RN 109346-48-7 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 3,5-dihydro-5-(2-methylphenyl)-, 2,2-dioxide  
(9CI) (CA INDEX NAME)



RN 109346-49-8 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 5-(2-bromophenyl)-3,5-dihydro-, 2,2-dioxide (9CI)  
(CA INDEX NAME)



L32 ANSWER 57 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1981:551494 HCAPLUS Full-text

DOCUMENT NUMBER: 95:151494

TITLE: Immobilization of heme complex by radiation polymerization

AUTHOR(S): Nishide, H.; Kato, M.; Tsuchida, E.

CORPORATE SOURCE: Dep. Polym. Chem., Waseda Univ., Tokyo, 160, Japan

SOURCE: European Polymer Journal (1981), 17(5), 579-81

CODEN: EUPJAG; ISSN: 0014-3057

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Transparent films containing Fe-porphyrin complexes were prepared by the  $\gamma$ -irradiation of aqueous solns. of a water-soluble monomer (e.g., 1-vinylpyrrolidone or 2-hydroxyethyl methacrylate) and complexes of heme, deuteroheme, hemin, or deuterohemin with a 2-methyl-1-vinylimidazole-1-vinylpyrrolidone copolymer. The Fe(II)-porphyrin complex was immobilized in the film by covalent bonding without denaturation, under anaerobic conditions or by protection of the complex with CO. After irradiation, the central Fe ion was reduced spontaneously to the Fe<sup>2+</sup> state. Films containing the complex quant. adsorbed CO.

L32 ANSWER 58 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1978:443136 HCAPLUS Full-text

DOCUMENT NUMBER: 89:43136

TITLE: Optically active N-alkyllactam esters

INVENTOR(S): Wakabayashi, Toshio; Watanabe, Kenzo; Kato, Yoshinori;  
Kato, Masahiko

PATENT ASSIGNEE(S): Teijin Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

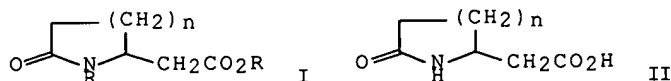
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 53025557	A	19780309	JP 1976-98584	19760820
JP 61010466	B	19860329		
PRIORITY APPLN. INFO.:			JP 1976-98584	A 19760820

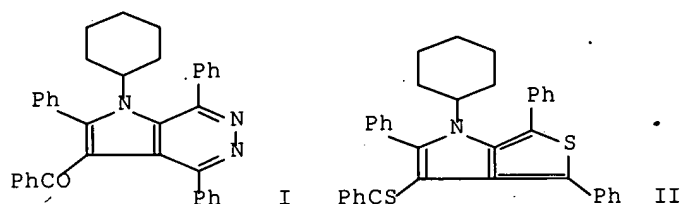
GI



AB Optically active I ( $n = 1, 2$ ;  $R = \text{Me, Et}$ ) were prepared by treating optically active II with RI and NaH in DMF. Thus, 286 mg (+)-II ( $n = 1$ ) in DMF was treated with 201 mg NaH and then 1.136 g MeI and stirred 7 h at room

temperature to give 294 mg (-)-I ( $n = 1$ ,  $R = \text{Me}$ ). Also prepared were (-)-I ( $n = 1$ ,  $R = \text{Et}$ ) and (+)-I ( $n = 2$ ,  $R = \text{Me}$ ).

L32 ANSWER 59 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1978:443293 HCAPLUS Full-text  
 DOCUMENT NUMBER: 89:43293  
 TITLE: Synthetic approaches to fused heteroaromatic compounds  
 by the condensation reactions of functional pyrroles  
 AUTHOR(S): Uchida, Takane  
 CORPORATE SOURCE: Fac. Educ., Fukui Univ., Fukui, Japan  
 SOURCE: Journal of Heterocyclic Chemistry (1978), 15(2), 241-8  
 CODEN: JHTCAD; ISSN: 0022-152X  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 89:43293  
 GI



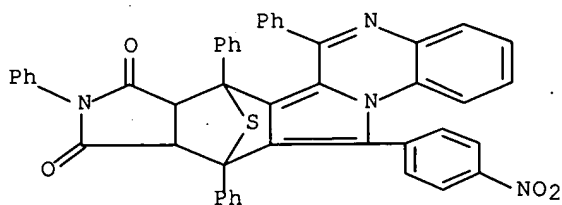
AB Diacyl- and triacylpyrroles, obtained by one pot synthesis from aziridines and acetylenic dipolarophiles, underwent condensation reactions. On treatment of 3,4-di- and 2,3,4-tribenzoylpyrroles with hydrazine hydrate and phosphorus pentasulfide, pyrrolopyridazine derivs., e.g. I, and fused thiophenes, e.g. II, resp., were prepared. The structure proofs for I were based on the  $^{13}\text{C}$  FT-NMR spectrum of the corresponding  $^{13}\text{C}$ -enriched compds.

IT 66864-55-9P

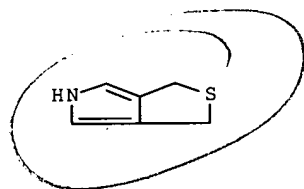
RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)

RN 66864-55-9 HCAPLUS

CN 7,11-Epithio-7H-pyrrolo[3',4':5,6]isoindolo[2,1-a]quinoxaline-8,10(7aH,9H)-dione, 10a,11-dihydro-12-(4-nitrophenyl)-6,7,9,11-tetraphenyl- (9CI) (CA INDEX NAME)



ACCESSION NUMBER: 1977:422129 HCAPLUS Full-text  
 DOCUMENT NUMBER: 87:22129  
 TITLE: On the aromatic stability of positional isomers consisting of bicyclic systems composed entirely of five-membered heterocycles ✓  
 AUTHOR(S): Milun, M.; Trinajstić, N.  
 CORPORATE SOURCE: Rudjer Boskovic Inst., Zagreb, Yugoslavia  
 SOURCE: Croatica Chemica Acta (1977), 49(1), 107-13  
 CODEN: CCACAA; ISSN: 0011-1643  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB Bicyclic conjugated compds. consisting entirely of 5-membered heterocyclic rings are studied by topol. resonance energy (TRE) index. The TRE correctly predicts the aromatic behavior of the positional isomers.  
 IT 63156-10-5  
 RL: PRP (Properties)  
 (aromaticity of, topological resonance energy and graph theory in relation to)  
 RN 63156-10-5 HCAPLUS  
 CN 1H-Thieno[3,4-c]pyrrole, 3,5-dihydro- (9CI) (CA INDEX NAME)



L32 ANSWER 61 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1974:505350 HCAPLUS Full-text  
 DOCUMENT NUMBER: 81:105350  
 TITLE: Synthesis of nonclassical thiophenes  
 AUTHOR(S): Potts, K. T.; McKeough, D.  
 CORPORATE SOURCE: Dep. Chem., Rensselaer Polytech. Inst., Troy, NY, USA  
 SOURCE: Journal of the American Chemical Society (1974), 96(13), 4268-75  
 CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 GI For diagram(s), see printed CA Issue.

AB P2S5 treatment of suitable vicinal dibenzoyl heterocycles was established as a convenient pathway to three nonclassical thiophene systems: tetraphenylthieno[3,4-c]thiophene (I), 5-methyl-1,3,4,6-tetraphenylthieno[3,4-c]pyrrole (II), as well as hexaphenylthieno[3,4-f]isothionaphthene (III). 1,3-Dipolar cycloaddn. reactions with PhCOC.tplbond.CCOPh, utilizing the "masked" 1,3-dipole of several mesoionic systems, readily provided the precursors to the 10 $\pi$ -electron heterocycles. II formed 1:1 primary cycloadducts with activated olefins across both the 4 and 6 positions (azomethine ylide) and 1 and 3 positions (thiocarbonyl ylide), these addns. being examples of kinetic and thermodynamic product control. In some cases, the thiocarbonyl ylide adducts underwent thermal elimination of the elements of H<sub>2</sub>S giving rise to bicyclic heteroaromatics. The addition of PhCOC.tplbond.CCOPh occurred only across the azomethine ylide affording a stable 1:1 adduct. I and PhCOC.tplbond.CCOPh formed an unstable 1:1 adduct which decomposed by the elimination of S forming 5,6-dibenzoyl-1,3,4,7-tetraphenylisothionaphthene which, in turn, afforded III upon treatment with P4S10. This novel 14 $\pi$ -electron system underwent cycloaddn. reactions with olefins across the 1 and 3 positions.

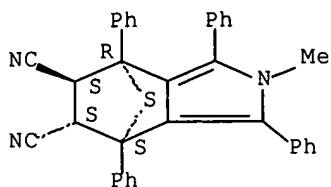
IT 41223-66-9P 52579-55-2P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

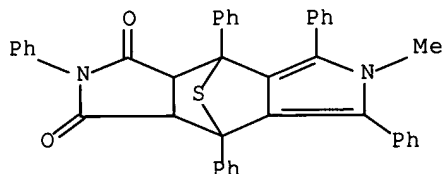
RN 41223-66-9 HCAPLUS

CN 4,7-Epithio-2H-isoindole-5,6-dicarbonitrile, 4,5,6,7-tetrahydro-2-methyl-  
1,3,4,7-tetraphenyl-, (4 $\alpha$ ,5 $\alpha$ ,6 $\beta$ ,7 $\alpha$ )- (9CI) (CA  
INDEX NAME)

Relative stereochemistry.



RN 52579-55-2 HCAPLUS

CN 4,8-Epithiobenzo[1,2-c:4,5-c']dipyrrole-1,3(2H,3aH)-dione,  
4,6,8,8a-tetrahydro-6-methyl-2,4,5,7,8-pentaphenyl-,  
(3a $\alpha$ ,4 $\alpha$ ,8 $\alpha$ ,8a $\alpha$ )- (9CI) (CA INDEX NAME)

L32 ANSWER 62 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1974:133307 HCAPLUS Full-text

DOCUMENT NUMBER: 80:133307

TITLE: Nonclassical condensed thiophenes. IV. Derivatives  
of thieno[3,4-c]furan-SIV and thieno[3,4-c]pyrrole-SIV  
AUTHOR(S): Cava, Michael P.; Sprecker, Mark A.; Hall, William Roy  
CORPORATE SOURCE: Dep. Chem., Univ. Pennsylvania, Philadelphia, PA, USA  
SOURCE: Journal of the American Chemical Society (1974),  
96(6), 1817-21

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

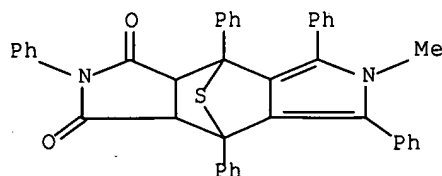
GI For diagram(s), see printed CA Issue.

AB Tetraphenylthieno-[3,4-c]furan-SIV (I) has been generated as a transient  
intermediate which could be trapped efficiently by dimethyl  
acetylenedicarboxylate. In contrast, the red N-methyl-1,3,4,6-tetra-  
phenylthieno[3,4-c]pyrrole (II) and pentaphenylthieno[3,4-c]-pyrrole have been  
synthesized and are stable in the solid state. Some simple reactions of the  
thienopyrrole system are discussed including catalytic reduction oxidation and  
cycloaddns. The results of CNDO/2 calcns. for the parent heterocycles thieno-  
[3,4,-c]thiophene-SIV, thieno[3,4-c]furan-SIV, and thieno[3,4-c]-pyrrole-SIV  
are presented and correlated with the observed chemical of these systems.

IT 52579-55-2P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 52579-55-2 HCAPLUS

CN 4,8-Epithiobenzo[1,2-c:4,5-c']dipyrrole-1,3(2H,3aH)-dione,  
4,6,8,8a-tetrahydro-6-methyl-2,4,5,7,8-pentaphenyl-,  
(3a $\alpha$ ,4 $\alpha$ ,8 $\alpha$ ,8a $\alpha$ )-(9CI) (CA INDEX NAME)

L32 ANSWER 63 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1973:159489 HCAPLUS Full-text

DOCUMENT NUMBER: 78:159489

TITLE: Thieno[3,4-c]pyrrole system, a tetravalent sulfur  
heterocycle showing both azomethine ylide and  
thiocarbonyl ylide dipolar characteristics

AUTHOR(S): Potts, K. T.; McKeough, D.

CORPORATE SOURCE: Dep. Chem., Rensselaer Polytech. Inst., Troy, NY, USA

SOURCE: Journal of the American Chemical Society (1973),  
95(8), 2749-50

CODEN: JACSAT; ISSN: 0002-7863

DOCUMENT TYPE: Journal

LANGUAGE: English

GI For diagram(s), see printed CA Issue.

AB The thienopyrrole I was prepared by cyclizing BzMeNCHPhCO<sub>2</sub>H with  
PhCOC.tplbond.CCOPh to give 3,4-dibenzoyl-1-methyl-2,5-diphenylpyrrole and  
treating this with P<sub>2</sub>S<sub>5</sub>, followed by 10% NaOH. Treatment of I with  
fumaronitrile gave the 1:1-cycloadduct II in refluxing PhMe and III in  
refluxing C<sub>6</sub>H<sub>6</sub>. II eliminated H<sub>2</sub>S on heating to give 1,3,4,7-tetraphenyl-  
5,6-dicyano-2-methylisoidole.

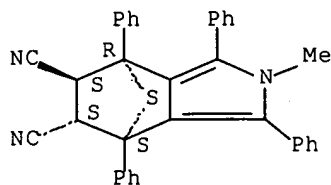
IT 41223-66-9P 41688-99-7P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 41223-66-9 HCAPLUS

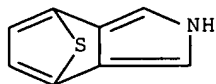
CN 4,7-Epithio-2H-isoidole-5,6-dicarbonitrile, 4,5,6,7-tetrahydro-2-methyl-  
1,3,4,7-tetraphenyl-, (4 $\alpha$ ,5 $\alpha$ ,6 $\beta$ ,7 $\alpha$ )-(9CI) (CA  
INDEX NAME)

Relative stereochemistry.

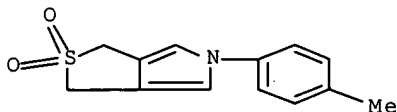




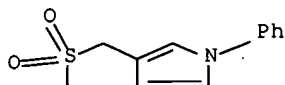
RN 41688-99-7 HCAPLUS  
 CN 4,7-Epithio-2H-isoindole (9CI) (CA INDEX NAME)



L32 ANSWER 64 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1974:3407 HCAPLUS Full-text  
 DOCUMENT NUMBER: 80:3407  
 TITLE: Synthesis of 1-aryl-3,4-dimethylenepyrrolidines by the thermal elimination of sulfur dioxide  
 AUTHOR(S): Ottenbrite, Raphael M.; Alston, Peter V.  
 CORPORATE SOURCE: Dep. Chem. Pharm. Chem., Virginia Commonw. Univ., Richmond, VA, USA  
 SOURCE: Journal of Heterocyclic Chemistry (1973), 10(5), 785-90  
 CODEN: JHTCAD; ISSN: 0022-152X  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 80:3407  
 GI For diagram(s), see printed CA Issue.  
 AB Reaction of 3,4-bis(bromomethyl)-2,5-dihydrothiophene 1,1-dioxide (I) with arylamines gave 5-aryl-1,3,4,6-tetrahydrothieno[3,4-c]pyrrole 2,2-dioxides (II) in good yields for arylamines with substituent groups with Hammett  $\sigma$  values <0.40. II were thermally decomposed to the corresponding 1-aryl-3,4-dimethylenepyrrolidines (III) in good yields.  
 IT 50872-65-6P 50872-66-7P  
 RL: SPN (Synthetic preparation); PREP (Preparation) (preparation of)  
 RN 50872-65-6 HCAPLUS  
 CN 1H-Thieno[3,4-c]pyrrole, 3,5-dihydro-5-(4-methylphenyl)-, 2,2-dioxide (9CI) (CA INDEX NAME)



RN 50872-66-7 HCAPLUS  
 CN 1H-Thieno[3,4-c]pyrrole, 3,5-dihydro-5-phenyl-, 2,2-dioxide (9CI) (CA INDEX NAME)



L32 ANSWER 65 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1972:72340 HCAPLUS Full-text

DOCUMENT NUMBER: 76:72340

TITLE: 1-(p-Chlorophenyl)-3,4-dimethylenepyrrolidine, a new pyrrole isomer

AUTHOR(S): Gschwend, Heinz W.; Haider, Hasan

CORPORATE SOURCE: CIBA Pharm. Co. Div., CIBA-GEIGY Corp., Summit, NJ, USA

SOURCE: Journal of Organic Chemistry (1972), 37(1), 59-61  
CODEN: JOCEAH; ISSN: 0022-3263

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 76:72340

GI For diagram(s), see printed CA Issue.

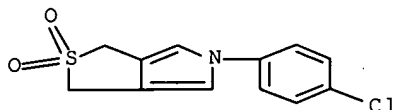
AB 1-(p-Chlorophenyl)-3,4-dimethylenepyrrolidine (I), isomeric with the corresponding pyrrole, was prepared. The key step involves the SO<sub>2</sub> extrusion of 5-(p-chlorophenyl)-1,3,4,6-tetrahydrothieno [3,4-c]-pyrrole 2,2-dioxide (II) under reduced pressure. The structure of the diene was confirmed by its spectral data as well as by conversion to a dimer and two Diels-Alder adducts.

IT 32515-68-7P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of)

RN 32515-68-7 HCAPLUS

CN 1H-Thieno[3,4-c]pyrrole, 5-(4-chlorophenyl)-3,5-dihydro-, 2,2-dioxide (9CI) (CA INDEX NAME)



L32 ANSWER 66 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1968:418890 HCAPLUS Full-text

DOCUMENT NUMBER: 69:18890

TITLE: Synthetic studies of benzocycloheptene derivatives.  
V. Syntheses and stereochemical consideration of trimethoxybenzocycloheptenone derivatives

AUTHOR(S): Hayashi, Yuji; Kato, Masahiko; Miwa, Toshio; Sakan, Takeo

CORPORATE SOURCE: Osaka City Univ., Osaka, Japan

SOURCE: Nippon Kagaku Zasshi (1967), 88(5), 569-73

CODEN: NPKZAZ; ISSN: 0369-5387

DOCUMENT TYPE: Journal

LANGUAGE: Japanese

GI For diagram(s), see printed CA Issue.

AB trans- $\beta$ -[2-(3,4,5-Trimethoxyphenyl) ethyl]paraconic acid lactone (I) (1.0 g.) and 18 g. HF was heated in an autoclave 13 hrs. at  $50 \pm 5^\circ$  to give 442 mg. trans-6,7,8,9-tetrahydro-2,3,4-trimethoxy-7-hydroxy-5-oxo-5H-benzocyclohepten-6-ylacetic acid lactone (trans-II), m.  $157-8^\circ$ , and 13 mg. 8,9-dihydro-2,3,4-trimethoxy-5-oxo-5H-benzocyclohepten-6-ylacetic acid (III). Similarly, cis-I gave 37.1% cis-II, m.  $157-8^\circ$ . Heating trans-II with

HCl in EtOH gave cis-II. trans-II (435 mg.) in 13 ml. EtOH was treated with NaOEt prepared from 33 mg. Na and 1.5 ml. EtOH to give 404 mg. III, m. 183°. Similarly, cis-II gave III. Heating III with 2N HCl and EtOH yielded cis-II. III was treated with CH<sub>2</sub>N<sub>2</sub> to give the Me ester, m. 121-2°, which (606 mg.) was heated with 20 ml. EtOH saturated with NH<sub>3</sub> at 50° to yield 479 mg. cis-7-amino-6,7,8,9-tetrahydro-2, 3,4-trimethoxy-5-oxo-5H- benzocyclohepten-6-ylacetic acid lactam (cis-IV), m. 186-7°. cis-IV was treated with 15% aqueous HBr in AcOH 30 hrs. at room temperature to give 45.5% cis-7-amino- 6,7,8,9-tetrahydro-2,3-dimethoxy-4- hydroxy-5-oxo-5H-benzocyclohepten-6-ylacetic acid lactam (cis-V), m. 236°. Similar treatment of cis-IV with HBr at 50-5° yielded 50% trans-V, m. 242°; acetate m. 217-19°. Attempted Reformatskii reaction of cis-IV yielded trans-IV, m. 200-200.5°, and cis-V and 39% cis-IV were recovered. cis-V isomerized partially to trans-V on heating. Methylations of trans-V and cis-V with CH<sub>2</sub>N<sub>2</sub> were followed by uv spectrography. trans-V reacted .apprx.50% in 70 hrs. to give cis-IV, whereas cis-V reacted completely in 15 hrs. to give cis-IV.

L32 ANSWER 67 OF 67 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1967:443173 HCAPLUS Full-text

DOCUMENT NUMBER: 67:43173

TITLE: Photolysis of 2,3-diphenyl-2-cyclopropenylcarboxylic acid azide and its homolog

AUTHOR(S): Castellucci, N. C.; Kato, Masahiko; Zenda, Hiroshi; Masamune, Satoru

CORPORATE SOURCE: Univ. Alberta, Edmonton, Can.

SOURCE: Chemical Communications (London) (1967), (10), 473-4  
CODEN: CCOMA8; ISSN: 0009-241X

DOCUMENT TYPE: Journal

LANGUAGE: English

GI For diagram(s), see printed CA Issue.

AB During photolysis, I converted to  $\alpha$ -ketocarbene and II underwent an intramol. addition to the double bond. In a further study of the addition reaction using III and IV 0.2% in ether at -30°, photolysis of III yielded 50-60% isocyanate (V), 4% diphenylacetylene, and 15% amide (VI), m. 162-3. V was also obtained by a normal Curtius rearrangement of III at 70°. Similarly, photolysis of IV, followed by treatment with EtOH at 70°, gave 6% 2,5-diphenylpyrrole (VII), m. 140.5-1.5, 5% 5,6-diphenylpyridone (VIII), m. 272-3°, 1% diphenylacetylene, 15% corresponding urethane (IX), and 21% 3,4-diphenylpyridone (X). Protonation occurred readily between EtOH and the isocyanate (XI) obtained thermally from IV. The resulting cation reacted with the solvent, or the double bond of the cyclopropene to form IX, and X. The photolysis of XI gave VII. XII was considered an intermediate in the formation of VII and possibly VIII.

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(FILE 'HOME' ENTERED AT 14:38:37 ON 18 DEC 2006)

FILE 'REGISTRY' ENTERED AT 14:38:43 ON 18 DEC 2006

L\*\*\* DEL STRUCTURE UPLOADED

L1 STRUCTURE UPLOADED

L2 0 SEA SSS SAM L1

D QUE L1

FILE 'HCAPLUS' ENTERED AT 14:39:41 ON 18 DEC 2006

E US2004-520050/APPS

10/520,050

L3 1 SEA ABB=ON PLU=ON US2004-520050/AP  
E WO2003-JP08266/APPS  
L4 1 SEA ABB=ON PLU=ON (WO2003-JP8266/AP OR WO2003-JP8266/PRN)  
L5 1 SEA ABB=ON PLU=ON (L3 OR L4)  
D SCAN  
SEL RN L5

FILE 'REGISTRY' ENTERED AT 14:40:18 ON 18 DEC 2006

L6 7 SEA ABB=ON PLU=ON (1313-82-2/BI OR 152940-72-2/BI OR  
152940-73-3/BI OR 22722-98-1/BI OR 2526-64-9/BI OR 63156-10-5/B  
I OR 646065-36-3/BI)  
D SCAN  
L7 79 SEA SSS FUL L1  
SAVE L7 DEBORAH050/A TEMP  
L8 2 SEA ABB=ON PLU=ON L7 AND L6  
L9 5 SEA ABB=ON PLU=ON L6 NOT L8  
D SCAN

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L10 2 SEA ABB=ON PLU=ON L8  
L11 32 SEA ABB=ON PLU=ON L7  
L12 32 SEA ABB=ON PLU=ON (L10 OR L11)  
L13 31 SEA ABB=ON PLU=ON L12 NOT L5

FILE 'MEDLINE, EMBASE, BIOSIS, CAOLD, WPIX' ENTERED AT 14:42:22 ON 18 DEC 2006

L14 0 SEA ABB=ON PLU=ON L7

FILE 'MEDLINE, EMBASE, BIOSIS, CAOLD' ENTERED AT 14:42:40 ON 18 DEC 2006

L15 0 SEA ABB=ON PLU=ON L7

FILE 'HCAPLUS' ENTERED AT 14:42:57 ON 18 DEC 2006

E KATO M/AU  
L16 1265 SEA ABB=ON PLU=ON ("KATO M"/AU OR "KATO M A M F"/AU OR "KATO  
M J"/AU OR "KATO M K"/AU OR "KATO M T"/AU OR "KATO M TAKAYUKI"/  
AU OR "KATO MASAHIKO"/AU)  
E KANEKO A/AU  
L17 301 SEA ABB=ON PLU=ON ("KANEKO A"/AU OR "KANEKO AKIRA"/AU)  
L18 4 SEA ABB=ON PLU=ON L16 AND L17  
L19 4 SEA ABB=ON PLU=ON (L18 OR L5)  
L20 34 SEA ABB=ON PLU=ON (L16 OR L17) AND ?PYRROL?  
D KWIC  
L21 36 SEA ABB=ON PLU=ON (L18 OR L19 OR L20)  
L22 36 SEA ABB=ON PLU=ON L21 NOT L13

FILE 'MEDLINE, EMBASE, BIOSIS, CAOLD, WPIX' ENTERED AT 14:45:01 ON 18 DEC 2006

L23 23488 SEA ABB=ON PLU=ON KATO M?/AU  
L24 2736 SEA ABB=ON PLU=ON KANEKO A?/AU  
L25 78 SEA ABB=ON PLU=ON L23 AND L24  
L26 2 SEA ABB=ON PLU=ON L25 AND PYRROL?  
L27 179 SEA ABB=ON PLU=ON (L23 OR L24) AND PYRROL?  
L28 56 SEA ABB=ON PLU=ON (L23 OR L24) AND (PYRROL?(L) DERIVATIVE#)  
  
L29 51 DUP REM L28 (5 DUPLICATES REMOVED)  
ANSWERS '1-4' FROM FILE MEDLINE  
ANSWERS '5-11' FROM FILE EMBASE  
ANSWERS '12-51' FROM FILE WPIX  
L30 51 SEA ABB=ON PLU=ON (L26 OR L29)

10/520,050

FILE 'STNGUIDE' ENTERED AT 14:46:58 ON 18 DEC 2006

D QUE L22

D QUE L30

D QUE L13

FILE 'HCAPLUS, MEDLINE, EMBASE, WPIX' ENTERED AT 14:47:17 ON 18 DEC 2006

L31 110 DUP REM L22 L30 L13 (8 DUPLICATES REMOVED)

ANSWERS '1-67' FROM FILE HCAPLUS

ANSWERS '68-71' FROM FILE MEDLINE

ANSWERS '72-78' FROM FILE EMBASE

ANSWERS '79-110' FROM FILE WPIX

D QUE L26

D QUE L22

D QUE L13

L32 67 DUP REM L26 L22 L13 (2 DUPLICATES REMOVED)

ANSWERS '1-2' FROM FILE WPIX

ANSWERS '3-67' FROM FILE HCAPLUS

D ALL ABEQ TECH L32 1-2

D IBIB ABS HITSTR RETABLE L32 3-67

FILE HOME

FILE REGISTRY

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 15 DEC 2006 HIGHEST RN 915749-75-6

DICTIONARY FILE UPDATES: 15 DEC 2006 HIGHEST RN 915749-75-6

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH June 30, 2006

Please note that search-term pricing does apply when conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

FILE HCAPLUS

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FILE COVERS 1907 - 18 Dec 2006 VOL 145 ISS 26

FILE LAST UPDATED: 17 Dec 2006 (20061217/ED)

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10/520,050

This file contains CAS Registry Numbers for easy and accurate substance identification.

FILE MEDLINE

FILE LAST UPDATED: 15 Dec 2006 (20061215/UP). FILE COVERS 1950 TO DATE.

All regular MEDLINE updates from November 15 to December 16 have been added to MEDLINE, along with 2007 Medical Subject Headings (MeSH(R)) and 2007 tree numbers.

The annual reload will be available in early 2007.

This file contains CAS Registry Numbers for easy and accurate substance identification.

FILE EMBASE

FILE COVERS 1974 TO 18 Dec 2006 (20061218/ED)

EMBASE is now updated daily. SDI frequency remains weekly (default) and biweekly.

This file contains CAS Registry Numbers for easy and accurate substance identification.

FILE BIOSIS

FILE COVERS 1969 TO DATE.

CAS REGISTRY NUMBERS AND CHEMICAL NAMES (CNS) PRESENT FROM JANUARY 1969 TO DATE.

RECORDS LAST ADDED: 14 December 2006 (20061214/ED)

FILE CAOLD

FILE COVERS 1907-1966

FILE LAST UPDATED: 01 May 1997 (19970501/UP)

This file contains CAS Registry Numbers for easy and accurate substance identification. Title keywords, authors, patent assignees, and patent information, e.g., patent numbers, are now searchable from 1907-1966. TIFF images of CA abstracts printed between 1907-1966 are available in the PAGE display formats.

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file supports REGISTRY for direct browsing and searching of all substance data from the REGISTRY file. Enter HELP FIRST for more information.

FILE WPIX

FILE LAST UPDATED: 13 DEC 2006 <20061213/UP>

MOST RECENT THOMSON SCIENTIFIC UPDATE: 200680 <200680/DW>

DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

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FILE STNGUIDE

FILE CONTAINS CURRENT INFORMATION.

LAST RELOADED: Dec 8, 2006 (20061208/UP).